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Rose's Foundations for Nutritional Evaluation[1]

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EVALUATION IS A continuing need and challenge of all times. Every field of business, education, and government has had specialized activities for the purpose of evaluating the tangible aspects of products, performance, people, and assets. Recently, emphasis has also been placed on the more intangible aspects. These include attitudes, ideas, satisfactions, potentialities, and ambitions, and changes which occur in these items as a result of the application of techniques of education, advertising, and others.

Evaluation is imperative. If we are to exist, to grow, and to have meaning to our lives, we must know where we are, where we have been, and on the basis of critically reviewed knowledge, project what we should and can expect of the future.

To evaluate we must have the tools of facts and judgment, and we must use these within well defined problem areas. Evaluation cannot take place in a vacuum.

Basic vs. Applied Research

All researchers must be versed in the art and science of evaluation. They must be able to assess their own work in relation to that of others and in relation to the goal or solution toward which they are working. Some scientists choose to evaluate their work within the relatively narrow confines of an experimental situation, having as their chief goal the addition of information to our stock pile of basic facts and principles. Such activity is often referred to as basic research and is extremely important. In recent decades, there have been fears that this stock pile has remained static to an alarming degree because of overemphasis on finding practical answers to immediate questions and failure to recognize the urgency for constant enlargement of the stock pile.

Other scientists choose to devote their time and skills to withdrawing from the stock pile of basic information those facts and principles which have value in contributing to the solution of problems confronting some phase of the world we live in or are about to explore and perhaps to live in. Often such work is referred to as applied research.

A scientist in basic research may be interested chiefly in adding to our supply of facts or developing new concepts regarding the intermediate steps in the conversion in the body of tryptophan to niacin. A scientist in applied research, on the other hand, may take such facts and use them to measure the result of feeding a niacin-deficient diet. Originality does not consist only of discovering some basic fact; it also consists of seeing an opportunity to apply this fact at a point in time when it can be pursued with profit. Often the endeavors in the fields of basic and applied research overlap at many points.

Mary Swartz Rose, whose memory this paper honors, had the high distinction of contributing generously both to the stock pile of basic information and to the application of such knowledge to the improvement of the nutrition of the nation's families. In addition, she had the rare ability of being able to teach what could be taught of these competencies to her students and to inspire them by example in the standards which are equally important, but too intangible to be taught as subject matter.

Evaluation Through Nutritional Status Studies

Evaluation has played a major role in the progress of the science of nutrition—evaluation of nutrients as chemical moieties, as essentials for specific functions of the body, appraisal of foods as sources of nutrients, and evaluation of the relationships between food and health.

A relatively recent aspect of nutritional evaluation has been emphasis on the determination of the nutritional status of population groups. By nutritional status we mean the state of health of the individual or group as conditioned by the choice and amount of foods, or more specifically *nutrients*, eaten. Assessing nutritional status is an effort to

[1]The Mary Swartz Rose Memorial Lecture sponsored by the Greater New York Dietetic Association, presented in New York City, April 27, 1960.

measure the extent of a cause-and-effect relationship between nutrient intake and the level of well-being of the body. It is an attempt to obtain a composite picture of many facets of the body's growth, functioning, and structure as related to previous and present food intake. This is indeed an ambitious attempt at evaluation in the field of human nutrition.

From 1947 through 1958, over two hundred professional nutrition investigators devoted a great deal of their time to answering the question: What is the nutritional status of the population of the United States? The studies were sponsored by the state Agricultural Experiment Stations, the Institute of Home Economics of the U. S. Department of Agriculture, the U. S. Public Health Service, and several of the state departments of public health. Children from the age of five years through twelve years, adolescents from thirteen to twenty years, and adults from twenty to past eighty years of age were studied from the standpoint of their food intake and their nutritional condition. About four thousand persons in each of these three age groups were studied in thirty-nine states. A variety of techniques was used: anthropometric and bone density measurements, balance studies, analysis of blood and urine for constituents related to essential nutrients in food, and examination of external tissues, skin, eyes, teeth and gums, together with records of kinds and amounts of food eaten.

The purpose of this large scale endeavor was three-fold: (a) to add to our knowledge more facts than had been available previously about the food habits and nutriture of more people in more parts of the country studied at approximately the same time; (b) to locate the population groups that needed attention directed to their food and nutriture; and (c) to provide a sound basis on which to develop effective educational programs for improving food habits or maintaining good food habits when they were already present.

What was accomplished by this program of research which had more breadth and depth than any nutrition project attempted to date? Certainly a great deal of reliable factual material has been gathered on the kinds and amounts of food that people of all ages are eating and on many of the physical and biochemical measures of body structure and functioning. These findings have been the subject of 179 publications to date and several more are still to be published.

To highlight the findings, I shall quote excerpts from *Nutritional Status U.S.A.*, the summary which Dr. Agnes Fay Morgan has compiled of the work (1):

> . . . The nutritional status of these citizens of the U. S. A. on the whole was found to be good, probably the best that has ever been reported for any similar population groups. The average nutrient intakes by both the boys and girls up to age 12 in all regions was estimated to be adequate, even *de luxe*, except that the calcium intake of the girls was slightly low. The standards for adequacy were those set up or reaffirmed in 1958 by the National Research Council for recommended daily allowances of nutrients.
>
> Food eaten by boys aged 13 to 20 years on the average provided adequate or more than adequate amounts of all nutrients except vitamin C, but the girls in this age range had food adequate or high in only 3 nutrients, vitamin A, riboflavin and niacin. The average intakes of the other nutrients by the girls were either seriously low, as for calcium, iron, thiamine and ascorbic acid, or borderline low, as for calories and protein. The diets of the teen-age girls presented the least favorable picture of all those examined.
>
> . . . The men had adequate or high average intakes of all nutrients except calories and thiamine, which are related to each other in the recommended allowances mentioned above. The women had good average intakes of all nutrients except calories, thiamine, calcium and riboflavin. The low calorie intakes cannot be cited as a deficit, since these people were by no means on the average underweight . . .
>
> The nutrients most often found to be lower than the recommended amounts in the diets of children and adults in all four regions were vitamins A and C, calcium and iron . . .
>
> . . . The blood analyses in general conformed with the values expected from the dietary observations. The physical signs often associated with nutritional deficiencies, such as roughness of skin, inflammation and thickening of mucous membrane of the eyes, swollen and reddened gums, occurred more frequently in the groups with low blood levels of vitamins A and C than in those with satisfactory blood levels. These findings did not, however, always bear out the dietary records of intakes . . .

Limitations in a Nutritional Evaluation

The logical sequence of questions brings us to: "And how do we evaluate the evaluation?" Certainly the results of these studies are valuable additions to our knowledge. There are, however, definite limitations to the interpretation that can be made of the findings and definite limits to what we have a right to expect the findings to tell us. Here are a few that we need to keep in mind:

A straight-line, quantitative relationship seldom exists between the level of intake of a nutrient at a given point in time or above a certain minimum and the body's composition and function related to that nutrient. If it did, obtaining and interpreting results would be relatively simple. The body has tremendous powers of adaptability to different conditions and levels of supply—this is much of the secret of its survival. In general, it will make more economical use of low or minimum supplies of nutrients than it will of generous supplies. For example, the body is likely to absorb a larger proportion of calcium from a low intake than from a generous intake In this way it tries to make full use of a small supply, especially when its needs are great. In terms of total amount, however, more calcium is absorbed from a generous intake than from a meager one. Thus, in evaluating the nutritional status of a well

fed population, it is more difficult to assess the significance of differences found among individuals than in a population that has only subsistence levels of food and nutrients.

Standards often used for evaluating dietary intakes are the Recommended Dietary Allowances of the National Academy of Sciences—National Research Council. Because these include a generous safety factor to cover many contingencies, we must not take the mere fact that an individual or population is consuming a diet which fails to meet these recommendations as evidence that health is impaired.

Nutritional status is affected by what happens to the food and nutrients within the body as well as by the quantity and quality of the food eaten. A low hemoglobin value may result from a dietary deficiency of iron, but it may also be due to infection or hemorrhage. The effects on well-being, however, may be identical.

Another limitation we must contend with in studies of nutritional status is the imbalance between the information we obtain from dietary records and that we obtain from the usual physical and biochemical tests made of the subjects. Food intake is usually measured for a short period—from 24 hr. to seven days. The nutritional status that is measured, however, is probably the reflection of a lifetime of food intake and the utilization that the body has made of that food. It also reflects the influence of many other factors of environment, such as climate, sanitation, housing, disease, and economic, social, and even emotional factors. Thus dietary studies give us a mere peep-hole static view of food intake, and we cannot expect this to explain the panorama of dynamic metabolic processes over a lifetime.

In addition, methods of obtaining data on food and nutrient intake for a brief period and for measuring the nutritional state of an individual at a given time are much more precise than methods for determining whether the recorded dietary intake is typical of the kind of a food supply a person has had during most of his life. We know that some people do change their food habits at different periods in their lives. Indeed, if they would not or could not change their attitudes and habits, there would be little point to our efforts in nutrition education, or even in advertising.

The last limitation I shall mention is our lack of information about what the differences in nutritional status mean in terms of the performance and the level of well-being of the individual. Here, again, our problem is greater when we are dealing with a well-fed population because the range of normality is wide. It is not difficult to assess the difference it makes to a person's health if he has a hemoglobin value of 9 gm. per 100 ml. as compared with a value of 14 gm., but we do not yet know what the difference in well-being is when a person has a hemoglobin value of 14 gm. per 100 ml. as compared with one of 15 gm. We must seek more answers to questions of what the differences in physical and biochemical values mean in terms of a person's performance, vitality, stamina, and other attributes or potentials of health. We must not be satisfied to interpret differences only in terms of the level of dietary intake that the physiologic values reflect. We must try to advance to the point of expressing the significance of such differences in terms of the level of well-being.

These limitations and gaps inherent in the interpretation of results of nutritional status studies in no way detract from the contributions which have been made, but rather indicate what has been accomplished in spite of the limitations. Such evaluation can lead us to see areas yet to be explored and goals yet to be reached.

A Backward Look

Instead of looking forward and appraising our potentialities for finding answers to these and many other questions which still confront us in the field of nutritional status, I have chosen to look backward at this point, in appreciation of the work which has been done to bring the science of nutrition to its present place of prominence and service as a factor in human welfare.

The rapid pace with which scientific developments appear on the world scene today sometimes make contemporary scientists think "we are responsible for all this progress." It takes time, perception, and humility to become fully aware of how many, how broad, and how firmly laid are the foundations which make it possible for us to move forward.

Pioneers of long ago who laid foundations such as the discovery of oxygen or the nitrogenous nature of proteins are likely to be remembered, sometimes even glamorized. It is the intermediate pioneers, however, those who just recently have preceded us in our own work, to whom we have the greatest indebtedness. These more recent pioneers were our teachers, or our teachers' teachers. It is they who have given us the foundations of dynamic current knowledge and effective applications firmly built on the foundations of the pioneers who preceded them.

Mary Swartz Rose is one of the outstanding pioneers, an intermediate one in our time, who relatively recently has contributed so much to both the undergirding and the superstructure of the science of nutrition as it exists today.

One common denominator of all studies of nutritional status is the evaluation of the food intake of subjects in terms of essential nutrients and energy value. In some studies, this is accomplished by laboratory analysis, but usually it is done by calculation from figures in tables of food composition.

The first comprehensive table of food composi-

tion published in this country was "Bulletin 28" of the U. S. Department of Agriculture in 1896, which was revised and expanded in 1899 and reprinted in 1906 (2). The data were compiled by W. O. Atwater and C. D. Woods and included the proximate composition and energy value of an extensive list of foods. This work was continued by the Department of Agriculture, and as mineral and vitamin values of foods became available, they were incorporated in the published tables of food composition.

It was Dr. Rose, however, who developed a form of tables of food composition that greatly expanded their usefulness. By meticulous laboratory weighing and measuring of hundreds of foods in many portions and many forms, she and students working under her supervision translated the figures given in Bulletin 28 into values per gram, per ounce, per pound, per 100-calorie portion, "as purchased," and "edible portion." She wrote that her reason for compiling the tables was that such calculations "are always tedious and rob the student of time for a more comprehensive comparative study of food values." She calculated the nutritive value of mixed dishes from the values given for their ingredients. She added and adapted values determined in her own laboratory and in laboratories over the country and kept the figures up to date. Later, she developed the share system as a visual aid in interpreting food values.

The availability of figures for food composition in terms of pounds, ounces, 100-calorie portions, and common measures as well as in percentage has made it possible for the evaluation of diets of individuals, of families, and of population groups to become a basic technique in nutritional investigations. It has also made possible the development of good guides for planning an adequate diet and food plans for budgets at different cost levels.

The tables of food values were presented in four successive editions of her *Handbook* from 1912 to 1937 (3) and after her death again revised in 1949 (4) by Clara Mae Taylor and Grace MacLeod, two of her associates for many years. These tables are indeed one of "Rose's foundations for nutritional evaluation."

A student of Dr. Rose, Bernice Kunerth Watt, in the Department of Agriculture has continued the work begun by Dr. Atwater on food composition and incorporated the practice started by Dr. Rose of expressing the results in household units as well as in metric weights. Under Dr. Watt's leadership, Miscellaneous Publication 572 (5) was issued which gave values for eleven nutrients and energy for 275 foods. This was superseded in 1950 by Agriculture Handbook No. 8 (6), which provided these values for 751 items. She now has in progress a revision of Handbook No. 8 which will include more than two thousand food items.

Another important aspect of nutrition investigation includes energy requirements and expenditure. Through the era of vitamins, energy was relegated to a minor position among the dietary essentials because of its apparent simplicity. However, the pendulum of interest and appreciation is swinging back to this very complicated area of human nutrition.

Figures for the energy expenditure of marching soldiers and coal miners and their fellow workers have been determined from time to time, but this is not true for women's work. Nutrition textbooks in their newest forms and latest editions still carry the detailed figures that Dr. Rose, before 1921, compiled and interpreted in an easy-to-use form for the energy cost of household tasks and many other activities. These tables have been revised as new figures have become available. Again, we find Dr. Rose's students and associates, Dr. MacLeod and Dr. Taylor, giving leadership to the continuation and expansion of this important field of work, especially the energy expenditure of women and of children, thereby building on the foundation laid by Dr. Rose for this aspect of nutritional evaluation.

Balance studies on human subjects constitute another important technique in our present-day nutritional investigations. Early in her research program, Dr. Rose recognized the value of such a tool for studying the body's requirement for nutrients which could be measured at the intake and excretion stages of consumption and metabolism. She saw the potentialities of using graduate (and undergraduate) students as well as the white rat as ready-made metabolic units, and she evolved the procedures which made it possible and practical to use these students as contributors of much needed information in the field of human nutrition. In addition to using balance studies to determine requirement, Dr. Rose used them even more to study the digestibility of foods and the availability of nutrients from different foods, such as the calcium from carrots and almonds, the iron from egg yolk, vitamin B from wheat bran, and to study the supplementary value among foods.

Today we are using similar methods and continuing to investigate requirements and availability of nutrients with emphasis on individual essential amino acids and fatty acids. The principle of Dr. Rose's work on supplementary values among foods is fundamental to work now in progress around the world to find combinations of foods, preferably indigenous ones, which will supplement each other in such a way that protein malnutrition can be eradicated. Fundamental to this are the results of balance studies designed to quantify the patterns or ratios of essential amino acids that are required for optimal growth and maintenance at different ages.

Thus balance studies are another of "Rose's foundations for nutritional evaluation."

I mentioned that one purpose of nutritional status studies was to provide a sound basis on which to develop effective educational programs to improve food habits. In this field, too, Dr. Rose was an outstanding pioneer. She developed the importance of nutrition as a subject of instruction from grade school to university; she conceived and promoted nutrition education as a means of service to every consumer of food. She carried nutrition directly into public service and gave special attention and help to the homemaker and mother, recognizing her as the keystone of her family's health.

Her book, *Foundations of Nutrition*, published in 1927 (7), was the first text written primarily for the beginning college student. Second and third editions of this text appeared in 1933 and 1938, and since her death it has been revised in 1944 (8) and in 1956 (9) by her associates, Dr. MacLeod and Dr. Taylor. Henry C. Sherman expressed so well her contribution in this area when he said (11) that her books, *Foundations of Nutrition* and *Feeding the Family* (10) "so outstandingly combine interest, practicality, and scientific soundness—linked the findings of the nutrition laboratory with the daily lives of people."

As a brilliant scientist, as an inspiring teacher, and as a dedicated publicist for better nutrition, Dr. Rose has rendered us, as well as her own generation, a fundamental, far-reaching service that is part of the very fabric of the permanent progress in the science of nutrition. The foundations she laid for nutritional evaluation and the structure she built will continue to serve the generations to come, helping them to fashion a bright future of good food for good health.

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Protective Effect of Milk Against Sr-90

A recent review on the effect of milk on strontium-90 accumulation in the human population gives strong support to the claim that milk is still our most satisfactory protective food, whether in terms of supplying needed nutrients or in terms of preventing strontium-90 accumulation in bone. Although milk has been considered in great detail, increasing attention has been given more recently to the strontium-90 accumulation in cereals, vegetables, fruits, and other items of the diet. The vegetable and cereal strontium-90 values have led to a realization that, especially in the adult diet, these products may actually be supplying five to twenty times the level of strontium-90 in the diet as milk. The only satisfactory way to evaluate a diet must be in terms of both calcium content and strontium-90 level. Because most foods contain less than 1 gm. calcium per kilogram, the micromicrocuries of strontium-90 per kilogram will be lower than the strontium units. This may lead to a tendency to eliminate those foods with highest strontium-90 content, not recognizing that if calcium is thus ignored, the calcium level of the diet will be reduced and deposition of strontium-90 will increase. The incorporation of strontium-90 into bone is decreased by an increase in the calcium level of the diet. A source of calcium which did not contain strontium-90, such as mineral sources of calcium, would then have a real advantage. Reducing the strontium-90 which comes from other foods should also be considered, since it appears that there is less discrimination against strontium-90 in low-calcium vegetable and cereal items. Milk provides the greatest protective action because of the discrimination by the cow and human body against strontium in favor of calcium.—*Abstracted from Nutrition Reviews 18: 197, 1960.*

A Technique

Retrospective Dietary Interviewing[1]

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IN THIS PAPER we wish to describe a technique for the dietary interview which we have found to be effective in our studies of the relation of nutrition to growth. The interview is a retrospective one, covering the first six years of a child's life, in which the mother is asked to recall and tell a connected story of the feeding practices she has used since the child's birth. We have found this instrument suitable, in studying certain populations, for obtaining information regarding the estimated average daily intakes for each year of such nutritional elements as milk and vitamin D.

If it is considered desirable for a child to realize his full growth potential, it is important to study the nutritional factors conditioning growth during the first six years of life. This is a period of sustained and rapid growth, uncomplicated by the endocrine changes which occur later. It is worth noting that by the time the American boy is six and a half years old he has attained approximately two-thirds of his adult stature, which is slightly more than half of his extra-uterine growth. Furthermore, the responsibility, care, and concern which his mother has borne throughout this period make it possible for her then to have a more thorough knowledge of her child's food intake than at any other period of his life.

Our investigations have been carried out using white first grade children and their mothers living in a rural county in eastern North Carolina. The sampling procedures will be described in a subsequent paper. Certain characteristics of these people and their way of life make them especially good subjects for this kind of study. They are largely of Anglo-Saxon origin, are highly indigenous and stable. Ninety-six per cent of the 163 children included in our research were born in the study county or in one immediately adjacent, and ninety of the last ninety-nine mothers interviewed had spent their lives in this area. Tobacco farming is the chief source of income, and most of it is done by tenant farmers. In a tobacco culture, the family both lives and works together, and during the preschool years the child is under the constant care and guidance of his mother. Responsibility for his feeding has not yet been shared to any great extent with persons or agencies outside of the home. The people we worked with are friendly, straight forward, and unpretentious. They do not appear to be compulsive in their nutritional behavior or to aspire to unrealistic dietary standards. There was little evidence of guilt or frustration in their feeding practices or their attitudes toward foods. Consequently, blocks to interviewing which frequently are met in other populations were not encountered in this study and information was freely given. It was our experience that the mothers in our study, when suitably interviewed, could give detailed information about the intakes of milk and vitamin D of their preschool children.

Development of the Interview

Much attention and time was spent in formulating an interview which would yield the information desired. Our specific objective was to obtain quantitative estimates of the average daily intake of milk in ounces and of vitamin D in international units for each of the child's previous six years. The instrument finally adopted was the product of nineteen months of study involving trial interviews of some 250 respondents. Its orderly development was based

[1]This investigation was supported by Public Health Service Research Grant A-929 M & N from the National Institute of Arthritis and Metabolic Diseases, Bethesda, Maryland. This is the third paper in a series on "Methodology in the Study of the Growth of School Children."

[2]The authors wish to acknowledge the assistance of Miss George Goss Smith, who, as an early research associate, did much of the work on the development of the interview and interviewed the first sixty-four mothers.

on repeated evaluations of the responses obtained in these preliminary studies.

Many of the practice interviews were recorded on tape, and these records were critically studied by the interviewer, the study staff, and consultants from the fields of biometrics, social science, public health nursing, medical social work, and pediatrics. Changes in technique suggested in such conferences were incorporated and tested in subsequent field trials. Attention was paid to the importance of avoiding bias or emotion on the part of the informant, to the need for proceeding in an orderly way in asking the questions, and to selecting suitable probes which might be used to elicit more meaningful responses from the mothers. We have found the tape recorder used in this way to be a most valuable aid in the formulation of an interview.

The Interview

In its final form, the interview used in our research was semi-structured and included open-end questions. It was designed to help the mother recall the information wanted, to keep her relaxed, and to insure that the experience of being interviewed would be a pleasant one. In general, about an hour was spent with each informant, at a time and place selected to suit her convenience, and in all cases the conversation was allowed to proceed in a leisurely manner. A gradual approach was made to the crucial part of the interview in which quantitative information was to be obtained. Questions were asked in a systematic way proceeding from the general to the specific and were first concerned with family food practices and the present dietary pattern of the child. The mother's thoughts were then directed step by step back to the time of his birth, so that she could relive the experience of feeding her child from birth to the present in an orderly fashion. The questions were so arranged that her answers at different times during the interview could be compared and served to check each other.

The interview was divided into sections, and at the end of each section the mother was asked to listen carefully while the information she had given was reviewed and to make corrections if any were indicated. This recapitulation provided an opportunity to learn whether the interviewer had interpreted the mother's answers correctly. The mothers often utilized this opportunity to confirm their statements and explain their practices in detail.

All interviews were conducted by a member of the research staff since the method used required skill, judgment, and a period of careful training. It was also necessary that the informant be one who had cared for the child since birth. In two instances where a child had changed homes, two informants were interviewed with satisfactory results.

The questions started with a "warm-up" period in which general information about the family was obtained and rapport was established between respondent and interviewer. In the section that followed, the food consumed by the family during the preceding day was recorded and notes were made of foods eaten by the study child at meal time and between meals. In reviewing this section, the mother was asked, at the end of each meal or snack, "Anything else?" If milk were not mentioned, further probes were used without mentioning milk, such as "anything to drink?" When the child had had milk, the kind and amount consumed was determined. This section served as an introduction to the interview and also provided the first estimate of the child's present intake of milk and of vitamin D from milk sources.

Following the above, questions were asked regarding the early use of table foods by the child. In this way, the mother's thinking was directed to an earlier age, and her answers provided an estimate of the child's consumption of milk and of vitamin D from milk during the previous years.

The next section of the interview concerned the family's present use of milk. Information was obtained regarding the kinds and amounts of milk available in the home, the sources of supply, whether the milk was fortified with vitamin D, how it was used, how it was divided among the members of the family, and the duration of this general pattern of milk consumption by the family. This information was found to be very useful in checking the mother's previous and subsequent statements regarding the child's use of milk. It was found that in our study population, milk incorporated in recipes did not much influence the child's daily intake. It was necessary, however, to note carefully the use of ice cream and to learn its composition from the dairies serving the area.

At this point in the interview the mother was psychologically prepared to answer questions related to the feeding of the child soon after birth. Whether he was breast fed was first determined. Following this, the mother often volunteered information as to when she started bottle feedings and then, as a general rule, she would recount the history of the bottle feeding in a orderly fashion and with little questioning. Information was obtained regarding the kind of milk and the amount used, the method of preparing the formula, and the time when the child was first given milk by cup. Further questions elicited the history of the weaning period.

After summarizing this section, information was sought regarding the child's subsequent milk intake. The first question was, "After weaning, what did this child drink?" Usually several different liquids were mentioned, and if milk were not among them, the mother often called attention to this fact. If, however, she did not mention milk, the probe, "Anything else (to drink)?" usually produced the neces-

sary information. Other probes which were found useful in eliciting the history of the milk intake included: "How long did this (practice) continue?"; "And after that?"; "And then what?" When the questioning in this section was completed, the interviewer summarized for the mother the history of milk feeding from birth to six years of age. Any points of doubt were further examined; any confirmatory information needed was sought by additional questions.

In the final section of the interview questions were directed to the use of vitamin concentrates. For each preparation employed we wished to determine its identity, the duration of its use, and the dosage given. The introductory question was, "Have you ever given this child vitamins? cod liver oil? tonic?" (The latter term is sometimes used for a vitamin product in our study area.) If the answer was affirmative and the respondent could not recall the name of the product used, she was asked to describe the bottle, the liquid, the odor, the dropper if one were used, and the package. The interviewer then produced a box containing samples of various vitamin preparations commonly purchased and prescribed in the area, and the mother was asked to identify the product she had given to her child. Particular attention was paid to the length of time that the child received a given vitamin preparation as this had an important bearing on the total amount of vitamin D received. Often the total amount offered the child was best estimated from the mother's statement of the number (and size) of bottles of vitamin concentrate purchased at different times.

Analysis of the Interview

The interviewer was provided with a schedule which insured that questions were asked all respondents in the same order. Ample space was allowed for recording the information received from the mother. Soon after leaving each respondent, the interviewer made notes as to whether the mother appeared to be a relaxed, confident, and reliable informant. Observations and impressions were noted which might be useful later when reviewing the record. On returning to the hotel in the afternoon or evening, the interviewer reviewed each record to determine whether the body of quantitative information was complete and whether the mother's answers were consistent regarding a given practice. Interviews recorded on tape were played and checked with the answers recorded on the form.

Later, in the office, each record was again carefully studied and the information it contained was used to estimate for each of the child's six years of life his average daily intake of milk in ounces and of vitamin D in international units. The study of the relation of these intakes to growth will be described in a subsequent paper.

Discussion

Most of our interviewing was done in the spring and summer months when the families were working in the tobacco fields and at the barns. A college boy who had grown up in the county and was known to many of our respondents served as an assistant. He located the families and made an appointment for the interview at a time and place which suited the convenience of the mother. Thus, in practice, interviews were conducted at the home, at the tobacco barn, or in the interviewer's car parked near the place of work. The assistant freed the mother for the interview by doing whatever needed to be done at the time, whether it was taking the mother's place in the "handing" operation at the tobacco barn, hanging up clothes, giving a small baby his bottle, or taking the children off to play. Equipment for blowing soap bubbles, color books, crayons, and story books were carried along to provide amusement for the children.

The practice of interviewing the mother at her convenience, in surroundings familiar to her, while providing amusement for her children, helped to create a relaxed atmosphere. It is probably universal to human nature that a mother likes to talk about her children. Rarely does she have an opportunity to pursue this subject to her satisfaction for an hour with an interested listener while she is relieved of her immediate duties and responsibilities. Many of the mothers expressed a great deal of satisfaction in finding it possible to recall and separate out details concerning the child being studied. Often it seemed as though the mother, in recounting the story of each period of her child's life, was holding a precious gem and turning it about to see its different facets in the light. Her confidence increased as the interview proceeded, and she recalled with clarity facts apparently long forgotten.

The interviewer introduced herself to the respondent as a person from the university who was studying some of the many factors which affect growth and the different ways in which parents rear their children. The mother was made to feel that we were genuinely interested in her methods and that she could, indeed, contribute significantly to our knowledge. Care was taken not to identify the interviewer as one who had any special knowledge of foods and nutrition, to indicate that the study was concerned with nutrition, or with milk and vitamin D. In this way we avoided a possible cause of self-consciousness on the part of the mother, which might lead to bias or to her seeking information from the interviewer. In fact, at all times, we sought to cast the mother, rather than the interviewer, in the role of the "expert." She had had a valuable experience concerning which only she could speak with authority, and the details of this experience were well worth our time and study.

When approached and interviewed in this manner, our informants were usually cooperative and receptive. Only one mother refused to grant an interview, and of the 163 who complied, the information obtained was satisfactory for our purposes in all but three instances.[3] Acceptance of the interviewer and her task was shown by the frequency with which she was asked to stay to lunch. More often than not as preparations were made to leave, the mother made some approving comment, such as: "I sure enjoyed talking to you . . . now hurry back."

Other investigators have described in some detail the techniques of carrying out different types of dietary interviews and the qualifications and attributes needed for success in this work. We feel that it is sufficient for our purpose to refer the reader to two excellent publications on this subject (1,2), since any contributions we may have made to methodology are described here. It should be noted that the interview we used is unusual in its long period of retrospective study (six years) and in the fact that quantitative information is sought regarding intakes of only a limited number of foods easily identified in the daily diet (milk and vitamin D). We have found that these mothers of preschool children responded to this interview in a way which served the purposes of our study of growth. We are not so sure that the method would yield equally reliable results if it were applied to certain other population groups or if it were used to study foods or nutrients less easily recognized in the daily diet. In fact, we firmly believe that widely different types of dietary interviews are needed for different studies and that no single technique can be employed with uniform success.

[3]Two of these were instances of an unstable home with a mother who had grave shortcomings. The third situation involved a large family in which one or another of the older siblings frequently fed the study child.

Summary and Conclusion

A technique for a retrospective dietary interview was developed for the purpose of research relating nutritional intakes of milk and vitamin D to the growth in stature during the first six years of life. The method employed is described in this paper. It was formulated in nineteen months of study involving trial interviews of some 250 respondents, and was successfully applied to a sample of 163 mothers of white first grade children living in a rural county in eastern North Carolina.

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Diuretics and Sodium-Restricted Diets.

At the May meeting of the Nutrition Committee of the American Heart Association and Program Consultants of the A.H.A., Committee members were asked whether the new oral diuretics had affected the need for sodium-restricted diets (and therefore the A.H.A. diet booklets). It was suggested that an answer to this question be added to the "Note to the Physician," found in each copy of the three sodium-restricted diet booklets. This will be done when the present stock of the "Note" is exhausted. In the meantime, the Committee feels that the following information will be useful. Please note that this summary reflects the thinking of the Nutrition Committee, as expressed at its February 26, 1960, meeting and at the May 10 meeting. There is no "official" A.H.A. position on the subject.

(a) It is true that there may be less need for the 250 mg. and 500 mg. sodium levels. By using one of the diuretics as an occasional supplement to diet therapy, some physicians find it possible to prescribe a less rigid level of sodium restriction.

(b) Diuretics have a place, particularly when quick results are needed in acute conditions.

(c) However, the Nutrition Committee does not believe that diuretic drugs have taken the place of diet in treating patients with hypertension or congestive heart failure.

(d) The new oral diuretics are expensive (they run 10 to 14 cents a tablet, and two or more a day are usually required), and they can cause serious toxic reactions.

(e) For long-term use, a sodium restricted diet is simpler, safer, and more economical for the patient. It is preferable especially when a moderate or mild sodium-restricted diet will effectively control the patient's hypertension or water retention.

A Study of Fat Intake and Plasma Lipids[1]

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THE CURRENT concept that poly-unsaturated dietary fat may be of benefit in preventing and treating atherosclerosis has presented the dietitian with problems. Not the least of these are the preparation and control of diets which are rich in linoleate and which, at the same time, are similar enough to the patient's usual dietary pattern to be acceptable. This paper reports our experience in dealing with these problems in an experimental study carried out with thirty selected volunteers in a minimum security prison for older men located some 250 mi. from Berkeley, California. The study was designed to measure the effect on plasma lipids and cholesterol of substituting an unsaturated fat and a saturated fat, respectively, for some 80 per cent of the mixed fat in the regular ration. The menus and the foods given in the experimental diets were kept as nearly as possible like those for the rest of the prison on the same days. One month on a safflower-oil diet was followed by a like period on the prison ration. Then a coconut-oil diet was fed for a month. After that, subjects were observed and food intake recorded for an additional five-week period on prison ration.

The details of the biochemical findings have been reported elsewhere (1). Feeding safflower oil as described significantly lowered the plasma cholesterol and increased the percentage of linoleate in plasma cholesterol ester. Coconut oil produced changes in the opposite direction but of lesser magnitude. These are essentially the results desired when changes in dietary fat are recommended by a physician.

[1]Supported in part by USPHS Grant H-2152 and a grant by the California State Dairy Advisory Board. Data taken from theses submitted by the authors in partial fulfillment of the requirements for graduate degrees at the University of California, Berkeley. Work done under the direction of Ruth Okey, Ph.D. Received for publication August 3, 1960.

[2]With the cooperation of Charles E. DuBois, Food Administrator; John Carey, Food Manager; George Burch, Baker; and John Lee, Cook, California State Department of Corrections, Los Padres.

Methods

THE PRISON RATION

The experiment was preceded by: study of the prison ration; consultations with the food administrators, the superintendent, and the medical director of the prison; survey of facilities for food preparation at the prison; and discussion of the problem with the cook, baker, and other personnel directly involved.

The basic prison ration met the Recommended Dietary Allowances. Menus were varied and good. Meat was largely beef and pork, with pork being used more freely than at most institutions. Sauté frying in lard and baking were usual methods of food preparation, as were steaming and stewing. Bread and baked products were exceptionally good and well liked. Desserts included canned fruit, pies, puddings, and cakes. Service was cafeteria style. Each man was permitted to take or refuse food as he wished. Observation indicated that caloric intake varied chiefly because of consumption of different amounts of bread, cereals, and vegetables. Each man was, therefore, judged to be his own best control.

THE EXPERIMENTAL DIETS: PLANNING AND PREPARATION

Since, as noted earlier, we planned to substitute the fats to be studied for those in the prison ration and to make minimal changes in menus, it was necessary to "work over" some of the prison recipes to adapt them for use with the special fats. This was done first in the university laboratory and then with the kitchen staff at the prison.

Because of the high fat content of the pork, it was completely eliminated from the experimental diets. "Commercial" grade beef, trimmed to exclude fat, was substituted. Egg fat was eliminated by substituting egg white in recipes calling for eggs.

The cholesterol content of the experimental diets

TABLE 1 **Nutritive value of food intake during experimental and control periods***

DIET	CALORIES	CARBOHYDRATE	PROTEIN	FAT				CHOLESTEROL	CALORIES FROM FAT	FAT FROM ANIMAL SOURCES
				Total	Unsaturated	Polyunsaturated	Oleic Acid			
		gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	%	%
Safflower oil	2696	380	99	87	15.0	70.8	21.1	590	29	27
Control II	2275	265	73	102	35.6	62.0	51.7	573	40	65
Coconut oil	3023	416	104	105	84.3	18.8	17.1	614	31	25
Control III	2280	260	72	106	35.6	65.6	54.6	553	42	64

*Calculated from "exchange" values given in Tables 2 and 3.

was brought to that calculated for the prison ration, about 600 mg. daily (Table 1), by issuing to each man a daily "special diet supplement" in the form of a cookie containing 600 mg. cholesterol dissolved in safflower or coconut oil. Cookies were dispensed at the food administrator's office and were well liked by the men. Absorbability of the cholesterol so given had been tested in preliminary feeding trials with rats and had been found satisfactory. Since most of the cholesterol in the prison ration was furnished by items generally consumed in the amounts served, i.e., egg yolk, desserts, and meat, the above expedient seemed justifiable.

Safflower oil was comparatively easily incorporated into white sauce, gravies, and similar foods. For bread, cake, and pies, it was necessary to use more safflower oil per unit of flour than would have been needed with commercial shortenings. Final products were quite satisfactory. The oil did, however, give trouble in frying. A great deal of difficulty was experienced in making a satisfactory spread for bread. Safflower oil was ultimately used for this purpose only as "melted butter," i.e., flavored and colored. "Ice cream" was prepared with non-fat dry milk and the special fats by courtesy of a commercial dairy company.[3]

Coconut oil gave little trouble in cooking or baking since its properties were much like those of commercial shortening. An acceptable spread for bread was made quite easily by adding a little powdered sugar, coloring, and butter flavor to the oil. However, coconut oil products showed a distressing tendency to mold and had to be prepared and eaten within a short time.

RECORDS AND CALCULATIONS

Obviously, the conditions of the experiment did not make possible a degree of accuracy in measurement of food intake which would justify detailed calculation of nutrient values from published tables (2, 3), nor was trained assistance available for calculation by the short method of Leichsenring and Wilson (4). We needed data for individual subjects and chiefly for carbohydrate, fat, and protein intakes. We turned, therefore, to an adaptation of the "exchange" system used for computing diabetic diets (5) as given in Table 2.

TABLE 2 **Exchange values as used for calculating diabetic diets**

EXCHANGE NUMBER	EXCHANGE	AMOUNT	CARBOHYDRATE	PROTEIN	FAT
		gm.	*gm.*	*gm.*	*gm.*
1	milk	240	12	8	10
2A	vegetable	as desired	—	—	—
2B	vegetable	100	7	2	—
3	fruit	varies	10	—	—
4	bread	varies	15	2	—
5	meat	30	—	7	5
6	fat	5	—	—	5

Exchange values for the experimental diets had to be modified because only non-fat milk was used. Also, we needed estimates of the degree of unsaturation of the dietary fats and the amounts of cholesterol eaten. "Exchange" values were, therefore, adjusted to give the necessary data for the two experimental diets and for the control or regular prison ration (Table 3). The figures for the composition of the dietary fats were taken from Hilditch (6) and later checked in our laboratory by gas liquid chromatography.

Food service for the experimental diets was through the cafeteria line in a small dining room used for men with special dietary requirements and known as the "diet kitchen." To avoid confusion, the subjects were served at the end of the meal period. An inmate clerk recorded kind and amount of food on each man's tray, as well as uneaten portions. During the first day or two of each period we were able to watch food service and suggest necessary precautions.

For the control period following the safflower-oil diet, the subjects returned to the main line cafeteria. Each man checked, on a form previously prepared from the day's menu, the amount and kind of food that he ate at each meal and between meals. For the control period after the coconut-oil diet, the men continued to eat in the smaller "diet kitchen" but were given the food served in the main dining room.

The existence of a "snack bar" where the prisoners could buy ice cream, chocolate, and candy complicated the problem of records and control. Reports that the men were dissatisfied because they were

[3]Foremost Dairies, Inc.

TABLE 3 **Exchange values used for calculating safflower-oil, coconut-oil, and control diets**

EXCHANGE	AMOUNT	CARBO-HYDRATE	PRO-TEIN	FAT					CHOLES-TEROL
				To-tal	Satu-rated	Unsat-urated	Poly-unsatu-rated	Oleic acid	
Safflower-Oil Diet									
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*
Milk*	240	12	8	—	—	—	—	—	—
Vegetable A	as desired	—	—	—	—	—	—	—	—
Vegetable B	100	7	2	—	—	—	—	—	—
Fruit	varies	10	—	—	—	—	—	—	—
Bread	varies	15	2	0.5	0.045	0.46	0.39	0.07	—
Meat	30	—	8	4	1.6	2.2	0.09	2.11	37
Fat	5	—	—	5	0.45	4.6	3.9	0.7	—
Sugar	15	15	—	—	—	—	—	—	—
Coconut-Oil Diets									
Milk*	240	12	8	—	—	—	—	—	—
Vegetable A	as desired	—	—	—	—	—	—	—	—
Vegetable B	100	7	2	—	—	—	—	—	—
Fruit	varies	10	—	—	—	—	—	—	—
Bread	varies	15	2	0.5	0.47	0.03	0.01	0.02	—
Meat	30	—	8	4	1.6	2.2	0.09	2.11	37
Fat	5	—	—	5	4.68	0.32	0.08	0.24	—
Sugar	15	15	—	—	—	—	—	—	—
Control Diets									
Milk*	240	12	8	10	5.52	3.98	0.62	3.36	33
Vegetable A	as desired	—	—	—	—	—	—	—	—
Vegetable B	100	7	2	—	—	—	—	—	—
Fruit	varies	10	—	—	—	—	—	—	—
Bread	varies	15	—	—	—	—	—	—	—
Fat	5	—	—	5	1.20	3.56	0.62	2.94	2.76
Pork	30	—	7	10	3.66	5.82	0.80	5.02	18
Beef	30	—	7	5	1.98	2.78	0.11	2.67	37
Fish	30	—	5	2	0.47	1.53	1.00	0.53	17
Milk fat	5	—	—	5	2.76	1.99	0.31	1.68	14
Egg	50	—	7	5	1.74	3.28	1.35	1.93	340
Sugar	15	15	—	—	—	—	—	—	—

*Reconstituted, dried skim; almost fat free.

deprived of evening snacks during the safflower-oil period led to issuance, with the coconut-oil diet, of a ration of hard, fat-free candy which could be consumed at night. There was, however, little reason to believe that the men "broke diet" during either of the experimental periods.

Results and Discussion

Table 1 summarizes the data from the dietary records calculated by the use of the exchange values listed in Table 3. It will be noted that no food intake records were obtained for the period preceding the safflower-oil diet. This was in late winter and early spring. Food intake may, therefore, have been higher than during the warmer summer months of control periods 2 and 3.

The differences in apparent caloric intake shown by the data for the control and the experimental periods are disconcerting. There is evidence that food intake did decrease somewhat during the control periods following the experimental diets. This was because the food prepared for 1200 men in the main kitchen was less attractive than that prepared in smaller quantities and with greater care to make it acceptable. On the other hand, the comparatively small mean weight gain (about 0.8 lb. per month) during the period on safflower oil did not indicate any great increase in caloric intake when that diet was given. Even the somewhat larger mean weight gain (1.8 lb.) recorded for the end of the period on coconut oil was only about one-third as great as might have been expected if the indicated increase in caloric intake were accounted for solely on the basis of fat. Moreover, detailed examination of the data showed that the recorded data for gains at the end of the period on coconut oil were not fully substantiated, either by the data for the week previous to, or the week immediately after, that date. A large proportion of the subjects showed, during the four and a half months they were under observation, weight gains and losses which were no greater than could be accounted for by chance differences due to weather conditions, salt intake, time of weighing (weights were recorded by an inmate clerk), and so on.

Based on accepted standards for age, weight, and

activity, the mean energy requirements of the subjects were estimated at 2600 to 2700 calories. This coincided closely with the intake record for the safflower-oil diet. During the period when coconut oil was fed, the ration of hard candy issued could account for the increase in caloric intake. There seems reason to believe, therefore, that application of "exchange" values adapted to the composition of a diet is a relatively quick method of calculation which can give a reasonably accurate measure of nutrient value. The limiting factor is obviously reliability of the food intake records.

The intake records kept for the experimental diets by one or two clerks were obviously to be preferred to those kept for the control diets by the subjects themselves. The clerks had been chosen on the basis of reputation for reliability and intelligence, had at least a minimum of training and supervision at the start of the experiment, and were impressed by the importance of their job. The twenty-nine men who kept food consumption records during the control periods showed, inevitably, greater variation in reliability and intelligence, as well as in understanding of the purpose of the records. Chief sources of error to be expected were in estimation of size of portion, in evaluation of plate waste, and in possible omission of such items as sugar or "snacks." It is, on the whole, surprising that the control records were as consistent as they were.

The prison ration as offered was high in fat because of its pork content and because of the use of lard in frying. On the other hand, considerable error in estimation of fat actually eaten was to be expected. Amounts of fat consumed per man per day seemed to be about equal for the control and the coconut-oil periods, but about 15 to 17 gm. lower for the period when safflower oil was used. Fortunately for the purposes of the experiment, these differences could be expected to minimize rather than to exaggerate the observed differences in the effects of the composition of the dietary oils. This is true also of the apparently higher consumption of protein on the experimental diets.

On the whole, the data indicated that the modified "exchange" method was feasible for calculating approximate nutritive value of the experimental diets. Moreover, it seemed applicable to control of similar diets if reliable records of food eaten could be kept. Recording food intake in the dining room was undoubtedly more satisfactory than the keeping of records by the individual subjects, even with carefully prepared record sheets based on daily menus. The latter did, however, give valuable qualitative data and reflect individual patterns of food consumption to an extent which might be of considerable value to the physician and the dietitian in charge of a patient who was being treated with a diet rich in unsaturated fat.

Summary

A method of modifying "exchange" values for calculating the nutrients supplied by diets rich in an unsaturated fat (safflower oil) and a saturated fat (coconut oil) is reported. Use of these values in calculating the nutrient intakes in an experimental study of the effect of substituting safflower oil and coconut oil, respectively, for some 80 per cent of the fat in a prison diet is described. When the "exchanges" were applied to food intake records made by clerks in the dining room, there was reason to believe that the data were reasonably reliable. The considerable decreases in food intakes reported by the men when they returned to the prison ration seemed to reflect both differences in acceptability of the food and a less desirable method of keeping records of food intake.

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French Want Food Fresh and Unfrozen

Homemakers in the Paris area, according to a recent survey of the Paris Chamber of Commerce, *prefer* to shop often and want truly fresh food. They apparently are almost totally uninterested in frozen foods. The average homemaker in the Paris area buys bread at least seven times a week; fruit and vegetables, four to five times; meat, cheese, butter, and wine, three to four times. A greater percentage of the family budget goes for food in France than in most other countries, but Parisian homemakers will not hunt for bargains, except for staples, such as potatoes, beans, and chocolate. And, when questioned, only 50 per cent could remember accurately what they paid for flour, chocolate, or cod fish.—*From France Actuelle Vol. 9, May 1, 1960.*

II. Selection of Subjects

A Study of Fat Intake and Plasma Lipids[1]

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IN PLANNING A study with human beings, one of the first problems is how and where to obtain subjects. For the project in question, we wanted men in an older age bracket, who were in generally good health. We needed a group who would be cooperative and willing to stay with the project for four to five months.

We were planning to investigate the effect of alterations in the dietary fat on the composition of blood lipids in humans.[3]

We were fortunate in locating an institution which is part of the California State Department of Corrections: the California Men's Colony at Los Padres. The supervisory staff was eager to have this type of project carried out there. The population group at the institution was in the upper age bracket. It was a minimum-security installation, making it a fairly easy place in which to work. In many respects it was ideal.

The plan of the project involved the feeding of two special diets alternately with control diets. Both control and test diets were to be fed for periods of four to five weeks. The control diet was the normal institutional diet, and the test diets were patterned after the normal diet with minimal changes in the menu pattern and the manner of preparation. In the test diets, either safflower oil or coconut oil was substituted for most of the normal dietary fat.

After establishing a working plan with the administrative staffs of the State Department of Corrections and the Men's Colony, we selected our subjects from the total population of 1100 as follows.

Procedure

The initial step was to place a notice in the institution newspaper describing the objectives of the study, the general methods to be employed, and the specifications to be met by the volunteer. No inducement was offered, but attention was called to the value of the study.

Medical histories were obtained for each of the volunteers. Pertinent data were summarized on a set form. Men whose records showed prior occurrence of any of the following conditions were eliminated from the list of prospective participants: coronary artery disease; diabetes; tuberculosis; chronic gastro-intestinal disease or any condition which might interfere with normal absorption; frequent acute illnesses; gross endocrinopathy; jaundice or hepatitis or any prior history of these conditions; requirements for special diets; frequent use of oral medication; major food allergies.

The remaining volunteers were examined by the Chief Medical Officer at the Men's Colony and eliminated if they showed signs of chronic alcoholism or narcotics addiction prior to entry into the institution, cardiac or pulmonary conditions, or marked departure from accepted weight standards.

After the volunteers had been screened by reference to their medical histories and physical examinations, they were then screened by a written questionnaire and were interviewed by the dietitian. The questionnaire was designed to uncover general eating habits and to indicate any unusual likes or dislikes that might interfere with the subject's adhering to the experimental diet.

The question of whether the man smoked was brought up in the interview. This was because the spending money of the residents of the institution is limited and if the individual were a smoker, it was felt that he would have less money to spend for food items at the canteen. However, no one was rejected on the basis of smoking or non-smoking.

As a result of the interview, several of the vol-

[1]Supported in part by USPHS Grant H-2152 and a grant by the California State Dairy Advisory Board. Data taken from theses submitted by the authors in partial fulfillment of the requirements for graduate degrees at the University of California, Berkeley. Work done under the direction of Ruth Okey, Ph.D. Received for publication August 3, 1960.

[2]With the cooperation of George F. Baier, III, M D., Medical Director, California Men's Colony, Los Padres.

[3]The results of these studies are reported elsewhere (1).

unteers were rejected because they never drank milk or ate vegetables. One was rejected because he said that he never ate lunch.

We felt that these interviews were important in establishing contact and rapport with the subjects, as well as in finding out their attitudes toward the study.

The men accepted for the study were given the following clinical tests: red blood cell count; white blood cell count; sedimentation rate; hematocrit; liver function test (bromsulphalein retention); serum non-protein nitrogen.

The men found acceptable by these criteria were then discussed with the security officers, who were able to judge the degree of cooperation that might be expected of each man. None was deleted on this basis, but it was felt that this was an important aspect to investigate.

Results and Discussion

The original list of seventy to seventy-five volunteers was, by these methods, finally reduced to thirty-one. This group could not be considered homogeneous by most criteria. It included men who were engaged in hard physical work or took part in strenuous sports, as well as men who had little activity. Some had been at the institution for only a short time, while others had been residents for many years. Their homes were from all over the state of California. Table 1 gives some of the pertinent physical and medical information about these men.

We feel that this selection procedure was successful in view of the fact that during the four and a half months of the study, only two of the thirty-one men were removed. One was removed for medical reasons during the first month. Another requested that he be removed during the first week. At no time did any of the remaining twenty-nine men ask for a release, although they had been initially notified that they could drop out at any time.

We feel that the success of this phase of the study was in a large part due to a careful initial screening and to a reasonably thorough presentation to the volunteers of the objectives of the experiments and methods to be used.

TABLE 1 Pertinent physical and medical information on men selected to serve as subjects in a human nutrition study

FACTORS	AVERAGE	RANGE
Age (yr.)	51.3	41–61
Height (in.)	69	65–74
Weight (lb.)	171	142–213
Erythrocytes (millions)	4.65	3.21–5.96
Leukocytes	8,400	5,000–14,600
Hematocrit	48	44–51
Bromsulphalein retention	—	0–6
Plasma total lipid (mg./100 ml.)	790	540–1025
Plasma free cholesterol (mg./100 ml.)	59.0	36.5–78.0
Plasma total cholesterol (mg./100 ml.)	199	126–288
Plasma phospholipid (mg./100 ml.)	249	123–325

At the end of the experiments, each volunteer was given a nominal monetary award, but they had not been notified of this in advance. A letter of thanks was also sent to each man and presumably was included in his institution file.

Summary

The procedure in selecting a fairly homogeneous group of about thirty subjects for a human nutrition study, from a total population of a large state institution, is described. Details of the ultimate selection of the participants from the group of eligible volunteers are given. It was shown that, by careful screening, a cooperative and reliable group could be obtained.

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Squaw Valley Hot Chocolate Milk

Athletes at last year's winter Olympics, held in Squaw Valley, California, enjoyed a tasty, quick-energy drink, according to reports from Gaynor Maddox, Food Editor for Newspaper Enterprise Association.

(4 servings)

1 qt. prepared chocolate milk
1 Tbsp. instant coffee powder
¼ c. malted milk
1 9-oz. can crushed pineapple

Combine all ingredients; mix well. Heat to serving temperature.

Factors Affecting Protein and Threonine in Hens' Eggs[1]

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REPORTS VARY as to the effect of the diet of the laying bird on composition of eggs produced. Pollard and Carr (1) and Gerber and Carr (2) presented evidence indicating that the percentage protein of pigeon eggs varies with the type of grain fed. Significant differences in protein percentage of the eggs of hens on different diets have been reported by Titus, Byerly, and Ellis (3). Csonka found (4) that hens on a high-protein diet produced eggs with a greater percentage of protein than those on a low-protein diet. In contrast to the above reports, several workers have found (5-8) that the protein content of eggs was not influenced by the diet of the layer. No reports were found dealing with the influence of diet on threonine content of eggs.

The general consensus of available reports is that actual grams of protein per egg do not decrease on aging of the egg, although evaporation of water and shifts of water from white to yolk sometimes cause changes in percentage protein (8-14).

Evans *et al.* found (15) that threonine decreased both in percentage and in actual weight, during the aging of eggs. Since serine was found to do likewise, they hypothesized that the hydroxy group of these amino acids might be involved in some type of linkage contributing to the firmness of the egg white, and that, on aging of the egg and "thinning" of the white, some of those linkages are broken by the splitting off of the hydroxy group. Schormuller and Walter obtained (16) variable results, with most groups of stored eggs exhibiting no change in threonine content although some groups showed a loss.

Significant, but small, genetic differences in nitrogen content of eggs were demonstrated by Arroyave *et al.* (17). Cotterill and Winter found (18) significant differences among strains in nitrogen content of egg white. Both Csonka and Jones (19) and Cotterill and Winter (18) found different electrophoretic patterns for the egg whites from hens of different lineage. No reports were found as to the effect of strain of bird on the threonine content of eggs.

The effect of age of the hen on egg protein and threonine has not been reported.

Reporting on limited data, Munks *et al.* indicated (20) that the threonine content of raw and of hard cooked eggs was essentially the same.

This report summarizes a series of exploratory experiments which were conducted to expand and strengthen the current knowledge of factors influencing egg protein and threonine. Due to the tedious nature of the threonine determination, the experimental numbers are small but the results give the first insight into a heretofore unexplored field.

Effect of Ration

EXPERIMENTAL PROCEDURE

Two Single Comb White Leghorn hens were used. The hens were housed in laying cages and had been on a commercial breeder ration (16 per cent protein) for five months prior to the initiation of the experiment. One hen was fed a 31 per cent protein ration, with a composition as shown in Table 1. The second hen was fed a high-threonine ration which was prepared by mixing 1 gm. threonine with 6.8 kg. commercial breeder ration already being fed. Eggs were collected for two days prior to the time the birds were placed on these rations and for a two-week period thereafter. All eggs collected within this period were evaluated for Haugh unit quality (21) and were analyzed individually for nitrogen content using A.O.A.C. micro-Kjeldahl methods (22) and for threonine content by the periodate methods of Block and Bolling (23) after hydrolysis of the

[1]Journal paper No. 1490, Purdue Agricultural Experiment Station. Received for publication September 10, 1959.

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TABLE 1 Composition of 31 per cent protein ration

INGREDIENT	PER CENT OF RATION
Ground yellow corn	44.00
Soybean meal (44%)	20.00
Alfalfa meal (17%)	5.00
Isolated soybean protein (Drackett, 86%)*	20.00
Ground limestone	5.50
Dicalcium phosphate	1.50
Stabilized yellow grease	1.00
Iodized salt	0.45
Manganese sulphate	0.05
Vitamin premix†	2.50

*Drackett Company, Cincinnati.

†Vitamin premix (mg./100 gm.): vitamin A concentrate (10,000 I.U./gm.), 150; vitamin B_{12} (6 mg./lb.), 50; vitamin supplement (4 gm. riboflavin, 8 gm. calcium pantothenate, 18 gm. niacin/lb.), 50; vitamin D concentrate (3,000 I.C.U./gm.), 50; menadione sodium bisulphate concentrate (mg. menadione/gm.), 12.5; vitamin E concentrate (20,000 I.U./lb.), 12.5; sufficient corn to make 2.5% of the ration.

egg material for 16 to 24 hr. in 8 N sulphuric acid. Each hen acted as her own control, with the mean value of the control eggs (those collected prior to the time the birds were placed on the test rations) being compared with the mean value of the eggs obtained during the two-week test feeding period by means of the Student t-test (24).

RESULTS AND DISCUSSION

High-Protein Ration. The effect of the 31 per cent protein ration on Haugh unit quality, protein content, and threonine content is shown in Table 2. The Haugh unit quality was not significantly different between the control and the test eggs. The mean protein percentage was 12.9 for both control and test eggs, while the mean grams of protein per egg were found to be 7.4 and 7.7 for control and test eggs. These results agree with several works (5-8), but are at variance with others (3, 4). The doubling of the protein content of the hen's diet failed to significantly influence the threonine content of the eggs, either on a percentage or on a weight basis.

High-Threonine Ration. The effect of the high-threonine ration on egg components can be seen in Table 3. Haugh unit quality was not significantly affected by the diet. The mean percentage protein of the control eggs (12.9 per cent) differed at the 0.05 level of probability from that of the test eggs (12.0 per cent). However, from past analyses of eggs from the same hen, it is thought that the protein percentage of 13.4 for egg number one was too high. This was the first egg that this hen laid after an extended pause in production, which might explain this high value. The mean grams of protein per egg, which were 6.4 and 6.2 for control and test eggs, respectively, did not differ significantly. Neither percentage threonine of egg protein nor milligrams of threonine per egg differed significantly between control and test eggs. Mean threonine

TABLE 2 Effect of 31 per cent protein ration on certain characteristics of eggs

DATE	HAUGH UNITS	PROTEIN		THREONINE	
		Per Cent	Weight per egg	Per cent	Weight per egg
		Control Diet			
			gm.		*mg.*
1/18/58	93	12.9	7.4	3.96	293
1/23/58	88	13.0	7.4	4.08	300
		Experimental Diet			
1/25/58	82	13.1	7.4	4.45	330
1/26/58	87	13.5	8.2	4.10	335
1/27/58	89	13.4	7.8	—	—
1/28/58	85	13.2	8.0	3.63	291
1/29/58	85	12.9	7.5	3.95	298
1/31/58	86	12.7	7.7	3.99	309
2/1/58	88	12.0	6.9	3.77	262
2/2/58	89	12.6	7.5	3.87	290
2/4/58	87	12.9	8.0	4.22	335
2/5/58	87	12.8	8.1	3.90	317

percentage was 3.96 and 4.20; milligrams of threonine per egg were 255 and 261 for control and test eggs, respectively.

The finding that the threonine content of egg protein is not influenced by either a high-protein or a high-threonine diet is new as far as the writers know. This is interesting, since it indicates that the ratio of pure protein in the egg of an individual hen is probably not affected by diet.

Effect of Cooking

EXPERIMENTAL PROCEDURE

Six pairs of eggs were used to test the effect of cooking on the threonine percentage of the egg protein. Eggs from individual hens were paired, with one fresh and one cooked egg being used for analysis. Poaching and hard cooking were the methods used. Poaching was done by placing the egg in 100 ml. simmering distilled water in a 600-ml. beaker. The beaker was then covered with aluminum foil and the heat turned off. An attempt was made to poach all eggs to the same degree. After the egg was cooked, the entire contents of the beaker, including the egg and the remaining distilled water, were transferred to a Waring Blendor. The Blendor was turned on for 1 min. to homogenize the sample. Samples were pipetted immediately, to prevent settling out of the suspension, into tared flasks for nitrogen determination and for hydrolysis. Hard cooking was done by placing the eggs in slowly boiling water and allowing the water to simmer for 15 min. The eggs were cooled by placing under cold running tap water. The shells with membranes were carefully removed. The samples were blended and treated as in the case of the poached eggs. Protein and threonine were determined as given above. Threonine values of the paired raw and cooked eggs were compared by means of the paired t-test (24).

TABLE 3 Effect of a high-threonine ration* on certain characteristics of eggs

DATE	HAUGH UNITS	PROTEIN		THREONINE	
		Per cent	Weight per egg	Per cent	Weight per egg
		Control Diet			
			gm.		*mg.*
1/19/58	68	13.4	6.2	4.01	249
1/23/58	72	12.5	6.7	3.90	261
		Experimental Diet			
1/24/58	76	12.8	6.8	4.09	278
1/25/58	70	12.1	6.4	4.22	270
1/26/58	70	11.4	5.9	4.31	254
1/27/58	65	12.3	6.5	3.88	252
1/28/58	73	11.6	6.0	4.93	296
1/29/58	70	11.6	6.0	3.78	227
1/30/58	64	12.2	6.1	3.72	227
1/31/58	74	11.9	5.6	4.21	236
2/1/58	70	11.9	6.1	3.97	242
2/3/58	73	12.1	6.4	—	—
2/4/58	74	11.9	6.3	4.53	285
2/5/58	72	11.7	6.3	4.49	283
2/6/58	67	12.5	6.6	4.27	282

*This ration was prepared by adding 1 gm. threonine to 6.8 kg. of the standard ration.

RESULTS AND DISCUSSION

The cooked eggs had an average loss of 0.22 per cent threonine. However, this loss was not significant. No differences were noted between the two methods of cooking. These results substantiate those of Munks *et al.*, who found (20) no difference in the threonine content of raw and hard cooked Grade B eggs.

Effect of Age of Egg

EXPERIMENTAL PROCEDURE

Eggs for storage were placed in 1-doz.-size egg cartons and stored at 35°F. until broken out for analysis. A storage time of eighty-seven days was used. Two eggs were taken from each hen and analyzed fresh during the same week in which the test eggs were placed in storage. These eggs were considered as controls, and their mean was tested against that of the stored eggs by means of the t-test (24).

RESULTS AND DISCUSSION

The results of the eighty-seven-day aging period on the components of eggs from six hens are shown in Table 4. It will be noted that the quality of the eggs decreased in every case, as would be expected. The loss in quality of eggs was extremely uniform for all hens, ranging from 17 to 25 Haugh units with the mean loss from all eggs being 21.7 Haugh units. The protein content of the eggs did not change significantly, either on a percentage or on a weight basis. Threonine content of egg protein, however,

TABLE 4 Effect of age of egg on certain characteristics of eggs

HEN	NUMBER OF OBSERVATIONS	TREATMENT	HAUGH UNITS	PROTEIN		THREONINE	
				Per cent	Weight per egg	Per cent	Weight per egg
					gm.		*mg.*
No. 44	2	fresh	78	13.5	6.0	4.57	274
No. 44	1	87 days	61	12.5	5.6	3.88	217
No. 45	2	fresh	88	13.2	6.6	4.28	282
No. 45	1	87 days	63	12.9	6.5	2.92	190
No. 56	2	fresh	78	13.0	6.2	4.34	269
No. 56	1	87 days	59	13.0	6.3	3.44	217
No. 58	2	fresh	94	14.0	6.4	3.88	248
No. 58	1	87 days	72	13.6	5.9	3.80	224
No. 55	2	fresh	93	13.8	6.2	3.74	232
No. 55	1	87 days	70	14.2	6.2	2.91	180
No. 57	2	fresh	95	14.5	6.7	3.72	249
No. 57	1	87 days	71	14.2	5.8	3.02	175

decreased during the storage period. The loss ranged from 0.08 to 1.36 per cent; on a weight basis, it ranged from 24 to 92 mg. These losses were significant at the 0.01 level of probability. These findings substantiate those of Evans *et al.* (15), thus giving further evidence that threonine might be involved in some way with the "thinning" of egg white.

Effect of Age of Hen

EXPERIMENTAL PROCEDURE

Analyses for protein and threonine were made of individual eggs from pullets during the early part of the laying year (August and September, 1957). After four months of laying, other individual eggs from the same hens were analyzed for protein and threonine. The effect of aging of the hen on egg weight, shell weight, and quality was also noted. Analyses of variance were used to determine the effect of age of hen on the protein percentage, grams of protein per egg, threonine percentage of the egg protein, and milligrams of threonine per egg.

RESULTS AND DISCUSSION

Table 5 lists the mean values of the characteristics studied for each of five pullets during the first and fourth months of laying.

Protein percentage of the eggs declined from 0.1 to 1.1 per cent among the birds, with the mean decline of all five birds being 0.56 per cent. The only statistically significant source of variation was due to the individual pullets within a strain. This was significant at the 0.01 level of probability. The age of pullet did not significantly affect egg protein percentage. Grams of protein per egg also varied significantly among pullets within a strain.

Threonine percentage of egg protein and milligrams of threonine per egg were not affected significantly due to aging of the pullet. They were affected by pullets within strains at the 0.01 level of probability. This indicates that the ratio of various proteins in the egg differs among hens Electrophoetic

studies have indicated that this hypothesis is true (18, 19). Since the purified egg proteins have vastly different threonine contents (25), a difference in the ratio of these proteins among individual pullets might explain the observed differences in the threonine content of their eggs. It is of further interest to note that this difference is, apparently, not due to threonine or protein content of the hen's diet.

Effect of Strain and Individual

EXPERIMENTAL PROCEDURE

Two pullets from each of three strains (White Leghorn, White Plymouth Rock, and Rhode Island Red) were used. Beginning August 29 and continuing until September 13, eggs were saved from each pullet. Individual eggs were analyzed for protein and for threonine daily. The data from these determinations were analyzed by variance (24) to determine strain and individual differences.

RESULTS AND DISCUSSION

The means of egg components of the three strains are given in Table 6. Strains were not significantly different as to protein content. Pullets within strains, however, showed differences which were significant at the 0.01 level of probability for percentage protein and grams of protein per egg. Later experiments with greater numbers did show significant differences among strains (26). The use of only two birds per strain and the highly significant individual differences might account for the failure to demonstrate strain differences in this case.

TABLE 5 Effect of age of pullet on certain characteristics of eggs

HEN	NUMBER OF OBSERVATIONS	MONTH OF LAY	HAUGH UNITS	PER CENT NITROGEN	PROTEIN		THREONINE	
					Per cent	Weight per egg	Per cent	Weight per egg
						gm.		*mg.*
44	13	1	80	2.08	13.0	5.9	4.24	250
44	6	4	71	1.98	12.4	6.3	3.92	247
45	6	1	90	2.10	13.1	6.4	4.13	264
45	4	4	88	2.09	13.0	7.6	4.26	324
51	7	1	95	2.29	14.3	6.8	3.82	260
51	2	4	83	2.11	13.2	8.0	3.51	281
56	11	1	79	2.10	13.1	6.5	3.98	259
56	5	4	70	1.99	12.4	6.9	3.86	266
58	6	1	91	2.16	13.8	6.3	3.86	243
58	3	4	82	2.16	13.5	6.9	4.55*	314*

*Result of only one determination as two samples were lost.

Threonine percentage of egg protein and milligrams of threonine per egg did not vary significantly among strains. Pullets within strains differed at the 0.01 level of probability for these values. Mean percentage threonine ranged from 3.82 to 4.44 and milligrams of threonine per egg ranged from 242 to 263 for individual pullets.

Summary

Exploratory experiments were conducted to determine the influence of strain of hen, age of hen, diet of hen, age of egg, and cooking of egg on the protein and threonine content of eggs. The protein content of eggs was significantly different among individual pullets, but was not affected by any other variable tested. Threonine was found to decrease significantly, both on a percentage and on a weight basis, as eggs aged. Significant individual differences in threonine content of eggs from individual pullets were noted. This led to the hypothesis that the ratio of various pure proteins in the egg varies among individuals. Thus each individual would have her own characteristic protein make-up which was not influenced by any of the variables studied.

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TABLE 6 Variations in certain characteristics of eggs due to strain of hen

STRAIN	MEAN EGG WEIGHT	MEAN SHELL WEIGHT	MEAN WEIGHT OF CONTENTS	MEAN HAUGH UNITS	MEAN PROTEIN		MEAN THREONINE	
					Per cent	Weight per egg	Per cent	Weight per egg
	gm.	*gm.*	*gm.*			*gm.*		*mg.*
White Plymouth Rock	52.8	7.2	46.0	90	13.7	6.4	3.96	258
Single Comb White Leghorn	53.5	6.5	46.8	85	12.8	6.0	4.24	253
Rhode Island Red	54.2	6.2	48.2	85	13.3	6.4	3.94	256

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Control of Insects in Hospital Food Carts

Frequently, German and Brown-banded roaches infest hospital food carts. Usually, the carts become infested while standing idle in roach-infested areas, such as kitchen and wards. When roaches once gain entrance to the insulated walls, the carts provide an excellent environment for them to rapidly increase their population since necessary environmental conditions, food, humidity, heat, and suitable hiding places are available in the carts. Also, the carts provide a mode of transportation to scatter roaches throughout the hospital.

In order to effectively eliminate the roaches from the food carts, two roach control programs must be started simultaneously. First, an application of residual insecticide (chlordane or malathion) should be applied thoroughly to areas in the kitchen or other places where roaches are known to occur. The application of the insecticide should be made every two weeks until the roaches are brought under control and then once a month thereafter. Second, since the application of insecticides on or in food carts in not recommended, it will be necessary to use the heat treatment method on food carts. This procedure consists of placing the carts in a small room with an available source of heat, preferably one with radiators or steam outlet valve. Arrangements should be made with hospital maintenance personnel to provide sufficient heat in this room to raise and maintain the temperature to a maximum of 130° F. The carts should be placed in the room and the heat turned on. They should remain in the room at 130° F. for 8 to 10 hr. Temperatures above 130° F. are not recommended for food carts containing refrigeration units, as temperatures above 130° F. may damage the refrigeration unit. After treatment, the carts should be removed from the room and allowed to cool to room temperature before they are put into service.—*Walter G. Adams, Entomologist, Headquarters Air Materiel Command, Wright-Patterson Air Force Base, Ohio. Reprinted with permission from the May 1960 issue of Air Materiel Command Surgeon's Information Bulletin.*

Sodium in Chinese Vegetables[1]

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ALTHOUGH A NUMBER of products have been analyzed for sodium, they include few foods eaten by Oriental people in the United States. In 1939, Chang (1), at the Peiping Union Medical College, made gravimetric determinations of the mineral content of Chinese foods while working on acid-base balance studies. Many of the values he reported were higher than those for the same foods analyzed by Bills *et al.* (2) and produced in the United States. Since foods vary in sodium content with season, locality, and method of analysis, additional information seemed desirable.

The purpose of this study was to determine, by flame photometry, the sodium content of vegetables commonly used in Far Eastern cookery and to compare the effects of different cooking methods—boiling, steaming, and stir-frying—on the sodium content of these vegetables.

[1]Received for publication October 19, 1959.

Materials and Methods

VEGETABLES

Five vegetables, obtained from local markets at various times, were analyzed. They are listed below under their several names.

ENGLISH NAME	BOTANICAL NAME	CHINESE NAME	JAPANESE NAME
White mustard cabbage	*Brasica chinensis*	bak choi	shirona
Leaf mustard cabbage	*B. juncea*	gai choi	oh-garashi
Mung bean sprouts	*Phaseolus aureus*	nga-choi	moyashi
Edible podded peas	*Pisum sativum macrocarpon*	hoh lang dau	chabo-endo
Chinese cabbage	*B. pe-tsai*	wong-nga-bak	shanto-na

The vegetables are illustrated in Figures 1 and 2.

The vegetables were rinsed with distilled water to

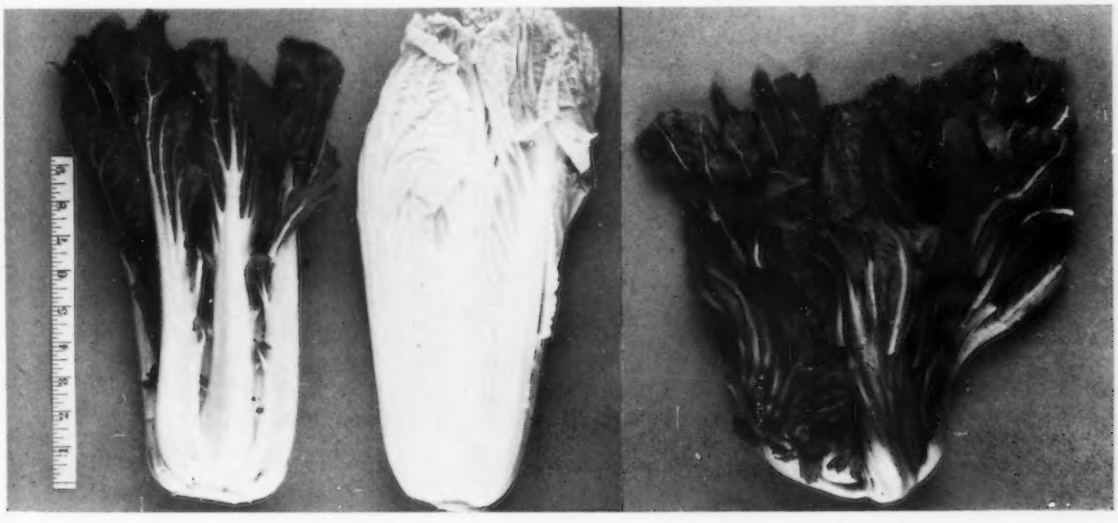

FIG. 1. *Left—bakchoi; center, Chinese cabbage; right—gai choi (scale expressed in inches)*

remove soil and dirt and blotted dry with clean cheesecloth. Bak choi, gai choi, and Chinese cabbage were cut diagonally into pieces 1 to 1½ in. long and thoroughly mixed to insure representative amounts of leaves and stems.

MOISTURE DETERMINATIONS

Weighed 100-gm. portions of the raw vegetables were homogenized with 20 ml. distilled water in a blender. Triplicate 10-gm. samples of the homogenate were dried to constant weight in an air oven at 70°C.

COOKING OF VEGETABLES

One hundred-gm. portions were used for each method of preparation: raw, boiled, steamed, and stir-fried.

For *boiling*, the weighed vegetable was added to 100 ml. distilled water brought to a boil in a 1-qt., stainless steel saucepan with copper bottom. The vegetable was cooked covered, over medium heat, until done—about 8 min. After cooking, the vegetable was transferred to a Pyrex funnel placed over a 100-ml. graduated cylinder, and drained for 15 min. The weighed vegetable was then homogenized with 20 ml. distilled water in a blender, and three 10-gm. aliquots of the homogenate were removed for sodium analysis. The volume of the drained cooking liquid was measured, and the liquid with washings from the saucepan was diluted to 100 ml. Two 25-ml. aliquots of the liquid were analyzed for sodium.

The *steamed* vegetable was cooked in a Pyrex dish on a rack, over distilled water, in a covered, 3-qt. saucepan for 12 to 15 min. Further treatment was the same as for the boiled vegetable.

For *stir-frying*, the vegetable was cooked with 3 ml. oil in a 1-qt. saucepan, over low heat for 15 to 18 min. No cooking liquid remained, but the saucepan was rinsed with about 40 ml. distilled water to recover any sodium leached from the vegetable during frying. The wash water was diluted to 50 ml. volume, and two 20-ml. aliquots were removed for sodium analysis.

All vegetables were cooked until done, which was considered achieved when the vegetable became soft and the stems appeared translucent.

ASHING

The 10-gm. samples from each homogenate were weighed into tared, 30-ml. Vycor crucibles, dried in an electric air oven at 70°C. for about 10 hr., charred under an overhead radiant heater, and ashed at 525°C. The cooked liquid was evaporated to dryness on a steam bath, charred, and ashed. Ashing was necessary to make an accurate sodium analysis, because flecks of vegetable drained into the cooking liquid.

SODIUM AND POTASSIUM ANALYSIS

Sodium and potassium values were determined by a modification of the flame photometric method developed by Clifford and Winkler (3). The ash was taken up in 10 ml. distilled water, acidified with 2 ml. constant boiling hydrochloric acid, and evaporated to dryness on a steam bath. The residue was dissolved in distilled water, 2 drops hydrochloric acid were added, and the mixture was diluted to 100 ml. The samples were analyzed by using a Beckman Model B spectrophotometer adapted for flame photometry. Values were derived from standard curves obtained through testing known solutions. Blank determinations were made in duplicate for each study.

Clifford and Winkler (3) suggest eliminating, from samples, the effect of phosphate, which acts as an emission depressant of the sodium wave. The phosphate is precipitated by the addition of calcium chloride, and the excess calcium is removed as the oxalate. To test the necessity of removing phosphate, a sample of raw bak choi homogenate was divided into six aliquots. Three were analyzed for sodium without removing the phosphate and three with the phosphate removed. Values of 41.0 and 41.4 mg. sodium per 100 gm. vegetable, respectively, showed so little difference that the remainder of the work was done without removing the phosphate.

Recoveries of sodium (0.5 mg. sodium as 1.27 mg. sodium chloride added to 10 gm. homogenate containing 3.1 mg. sodium) gave percentages close to or slightly over 100 (98, 100, 104, and 110 per cent).

Results and Discussion

In preliminary work, single lots of four vegetables gave values for sodium and potassium as follows:

	SODIUM	POTASSIUM
	mg./100 gm.	*mg./100 gm.*
Bak choi	49	288
Gai choi	38	350
Mung bean sprouts	1.0	94
Edible podded peas	0.7	1.7

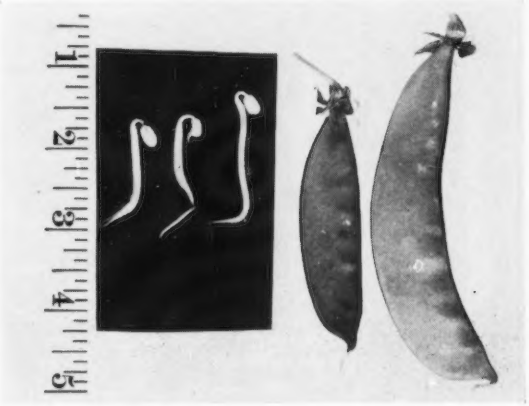

FIG. 2. *Left—bean sprouts; right—edible podded peas (scale expressed in inches)*

Because the bean sprouts and the peas were so low in sodium, they were not used to study the effect of cooking on sodium levels. Later, Chinese cabbage was found to have an appreciable sodium content and was included. Since restricted potassium intakes are not frequent, potassium analyses were discontinued.

Variation was noted in the sodium content of vegetables purchased at different times. Six samples of bak choi ranged from 16 to 49 mg. sodium per 100 gm. (average 33), and four samples of gai choi ranged from 13 to 38 mg. (average 28). Analysis of one sample of bak choi gave similar values for sodium in the inner and outer leaves—14.8 and 14.3 mg. per 100 gm., respectively. Another sample of bak choi showed a considerable difference between stem and leaves—29.8 mg. sodium per 100 gm. stems as compared with 69.3 mg. per 100 gm. leaves. The mineral content of the same plant may fluctuate as a result of agricultural or varietal differences, or of marketing processes which include watering, icing, or soaking. Previously, Bills *et al.* (1) had observed that sodium varied widely in leaf, stalk, and root vegetables, much more than did potassium. They noted that this was true not only for different products, but also for different samples of the same product.

The effects of boiling, steaming, and stir-frying on the sodium content of bak choi, gai choi, and Chinese cabbage are shown in Table 1. Stir-frying resulted in the greatest retention of sodium (average, 95 per cent for the eight experiments); boiling, the least (77 per cent); while steaming was intermediate (85 per cent).

Loss of sodium was attributed to leaching of the mineral from the vegetable during cooking, since the lost sodium was found in the cooking liquid. When the vegetable was stir-fried, only a small amount of juice was lost, and sodium retention was high. Evaporation of water from the vegetable results in a concentration of sodium in the cooked portion, so that the sodium value for 100 gm. cooked vegetable would be greater than in 100 gm. raw vegetable. This was particularly true for the stir-fried vegetables and, in some cases, for the steamed. Values for 100 gm. cooked vegetables are included in Table 1.

Sodium retention varied among different samples of vegetables cooked by the same method. This could be attributed to inadequate mixing of the leaves and stems before sampling, since these parts of the plant contain different amounts of sodium, and to variations in cooking time. Because it was difficult to judge accurately when the vegetable was done, variations in cooking time may have resulted.

These values are comparable with the results obtained by Krehl and Winters (4), who found that the average retention of calcium, iron, and phosphorus in twelve different vegetables was 76 per cent when 500 gm. vegetable were cooked with water to cover, 86 per cent when cooked in ½ c. water, and 93 per cent when cooked with no added water. This and other works have shown that the retention of soluble nutrients is least when food is cooked in the largest amount of water.

TABLE 1 Sodium in Chinese vegetables when boiled, steamed, and stir-fried

METHOD OF COOKING	MOISTURE*	SODIUM		
		Raw vegetable		Cooked, drained vegetables
		Solids	Liquid	
Bak Choi				
	gm./ 100 *gm.*	*mg./* 100 *gm.*	*mg./* 100 *gm.*	*mg./* 100 *gm.*
Sample 1				
Raw	94.2	15.8	—	—
Boiled	—	9.6	4.3	11.3
Steamed	—	13.4	2.5	17.2
Stir-fried	—	16.2	0.2	21.6
Sample 2				
Raw	94.6	32.3	—	—
Boiled	—	21.5	11.4	28.2
Steamed	—	26.5	6.7	34.4
Stir-fried	—	32.1	0.2	46.4
Sample 3				
Raw	94.4	26.9	—	—
Boiled	—	19.6	7.1	22.7
Steamed	—	28.1	3.0	31.6
Stir-fried	—	28.8	0.1	38.6
Gai Choi				
Sample 1				
Raw	91.8	35.6	—	—
Boiled	—	27.9	10.9	32.4
Steamed	—	29.7	4.8	36.4
Stir-fried	—	34.6	0	46.8
Sample 2				
Raw	93.3	27.2	—	—
Boiled	—	23.2	4.3	27.3
Steamed	—	23.4	3.2	28.0
Stir-fried	—	25.7	0.2	33.9
Sample 3				
Raw	92.8	12.8	—	—
Boiled	—	10.4	3.1	11.0
Steamed	—	10.5	1.1	12.0
Stir-fried	—	10.5	0.1	12.8
Chinese Cabbage				
Sample 1				
Raw	92.7	17.1	—	—
Boiled	—	15.9	1.7	18.3
Steamed	—	14.2	2.4	17.3
Stir-fried	—	15.3	0.3	20.7
Sample 2				
Raw	91.6	22.8	—	—
Boiled	—	18.8	6.4	19.1
Steamed	—	16.7	4.9	21.1
Stir-fried	—	20.3	0.2	29.0

*No moisture analyses were made on cooked vegetables.

Summary

Five vegetables commonly used in Far Eastern cookery—bak choi, gai choi, mung bean sprouts, edible podded peas, and Chinese—were assayed for sodium

content by a flame photometric method. Bean sprouts and edible podded peas contained little sodium—1.0 mg. and 0.7 mg. per 100 gm. fresh vegetable, respectively. Values varied in bak choi, gai choi, and Chinese cabbage purchased at different times. The sodium content of bak choi ranged from 16 to 49 mg. per 100 gm.; gai choi, 13 to 38 mg.; and Chinese cabbage, 17 to 23 mg.

The effect of the method of preparation on the sodium content of the cooked vegetables was determined. Stir-frying resulted in greatest retention (95 per cent); boiling, the least (77 per cent); and steaming was intermediate (85 per cent).

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Formulas for Reducing

Numerous powdered and liquid formula food preparations are being widely publicized and apparently widely sampled by many weight-conscious consumers. The sales success of one mixture has spurred others to promote such products.

A day's supply of the most widely used of these preparations supplies less than 1 gm. sodium. This low sodium content will cause the body to excrete an unusually large amount of water, resulting in variable weight loss during the first few days or weeks that the product is used. Some of the claimed effectiveness of this formula in producing weight loss may, in fact, be due to this "diuresis." But weight lost that way will be restored as soon as normal amounts of salt and water are supplied.

In recent years, a number of dietary formulas have been introduced as new and revolutionary. Among these were the milk diet, the milk-and-banana diet, milk-and-corn-oil drink, the high-fat diet, the high-protein diet, and formulations variously called the *Hollywood, DuPont, Rockefeller, Mayo Clinic, 7-Day, 9-Day, 12-Day, Good Housekeeping, McCall, Pageant,* etc., diets.

While many dietary innovations involve juggling of proportions of components of the normal diet, or exclusive dependence on one or two components, the powdered food preparation attempts to duplicate a well balanced diet. It offers the advantages of simplicity and convenience. But, even in this respect, it is neither new or revolutionary.

A clinical report (about the product) was published in *Southwestern Medicine*. Dr. R. J. Antos gave the preparation for twelve days to 100 subjects, many of whom were not grossly overweight. Twenty-five of them gave up the diet before the twelve-day period elapsed, for reasons not mentioned. The average weight loss for the other seventy-five was about 6½ lb., or 4 per cent of initial body weight. What proportion of this weight loss was caused by diuresis and what proportion was caused by burning up excess body fat is unknown, since the doctor did not measure salt and water output. The only conclusions that seem reasonable from this published medical study is that the product is effective, safe, and acceptable to many overweight patients for a period of twelve days. Whether it is safe for a longer period, whether it is a useful adjunct to weight-control programs, whether it is helpful in the re-education of the obese patient in good eating habits—all these remain to be proven.

Some indication of the general effectiveness of formula diets in achieving long-term weight reduction may be gained from an examination of the results and observations of Dr. Alvan R. Feinstein and his collaborators of the Rockefeller Institute. Fifty-nine per cent of 106 patients who began treatment with a milk-and-corn-oil mixture lost more than 20 lb. over some four months and 31 per cent lost more than 40 lb. (The average starting weight of these patients was 224 lb.) Among the advantages of the formula diets cited by Dr. Feinstein are their simplicity and inflexibility. "The patients taking the formula have no complex food lists from which to decide what and how much to eat. Any violation of the dietary prescription was unmistakable. For many patients, this rigidity was useful, since it removed uncertainties and self-deception in estimating the caloric value of natural foods."

Dr. Feinstein and his associates cite as disadvantages of a formula diet, even for short-term use, the monotony of the formula, gastrointestinal side-effects (gas, diarrhea, or constipation), and occasionally, emotional disturbances.

Consumer Reports would cite an additional potential disadvantage of such a formula diet as is now being marketed, especially if it is used as the total diet for a prolonged period: any attempt to reproduce a balanced human diet in powder or pill form runs the risk of omitting essential nutritional elements which may not be supplied by vitamin-mineral supplements but which are supplied by a balanced diet.

The key to successful lifetime (not short-term) weight reduction is medically supervised dieting, exercise, and often psychologic help. It may be less convenient to use standard foods in choosing and preparing a low-calorie diet that is balanced with respect to proteins, vitamins, and minerals, but a diet of this kind can be and has been used successfully to achieve permanent weight reduction. In the long run, the use of such a low-calorie, balanced diet combined with regular exercise is safer, and superior, educationally and nutritionally, to any special formula diet.

On the other hand, there is no harm in starting a reducing program with such a formula, and in maintaining it for a few weeks, provided its limitations and costs (compared with ordinary foods) are borne in mind.

Similar formulations could be constructed by the patient for less than 50 cents a day.—*Abstracted from* Consumer Reports, *July 1960.*

Learning-by-Doing Through Teaching[1]

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San Luis Obispo

LEARN-BY-DOING is the oldest method of learning. Early man, with limited means of communication, of necessity relied on demonstration and showing the young and his fellow men how to provide food, shelter, and clothing. In any field of teaching today, whether in the Boy Scouts, the public school, or an institutional up-grading program, one of the most effective methods of learning a simple or complex skill or behavior is through doing, with instruction from an able teacher.

In food service operations today costs are rising. Are there ways of making such operations more efficient? If it is discovered that one of the large contributors to higher costs is poorly prepared and inefficient labor, there *is* direct action that can be taken. First, ascertain the responsibility for improving the abilities of the workers. Make sure, through a clear administrative statement, who is responsible for each phase of instruction. When the supervisor is sure of her responsibility, she is then at liberty not only to proceed but also has an obligation to organize and conduct an instructional program for those responsible to her. Establishing administrative and operational responsibility is, therefore, one of the first and important steps in conducting an up-grading program. The supervisor acting as an instructor or a teacher of other supervisors will expect to see acceptable results from those taught. Achievement will be visible when: (a) the supervisor thoroughly understands all aspects of the work for which she is responsible; (b) she is able to communicate effectively with persons in her work situation; and (c) she can teach.

How to Teach a Skill

It is assumed that each dietitian-supervisor is well prepared technically and administratively to perform her responsibilities. Ordinarily, methods of teaching are not included in dietitians' professional preparation but must be learned later. Much of the teaching in the food service operation can be easy and interesting. The supervisor should feel confident that she can teach. Since much of the instruction involves teaching persons how to develop skills, it is not difficult to use a standard four-step procedure for this type of instruction. The steps are: (a) prepare the learner for the lesson, (b) present the skill by demonstrating it, (c) ask the learner to perform the skill, and (d) follow-up the learner on his regular duties. For example, the teaching of the simple skill of lifting a heavy object may be outlined as follows:

1. Prepare the learner.
   a. Ask him how important it is to lift objects correctly.
   b. Ask him what he knows about correct lifting. Other questions and statements can be added to make certain the learner has his attention on and is interested in learning the skill.
2. Present the skill.
   a. Stand close to the object. *Key points:* Stand squarely in front of the object. Space your feet an equal distance from the object.
   b. Bend to lift the object. *Key points:* Bend at the knees. Do not bend your back.
   c. Lift the object. *Key point:* Straighten your legs.
3. Ask the learner to perform the skill, giving the steps and key points.
4. Follow-up the learner in his regular work situation.

Instruction in this area of learning is usually reasonably simple and straight forward. However, lest the supervisor feel the process of teaching is too simple, there are some important points that will make all instruction easier.

Establishing Good Communication

Before the teaching of even simple skills can be effective, there must be good communication and rapport between the teacher and the student. Each person has his idea about communication. Communication within a hospital also involves relationships among

[1]Presented at the 42nd Annual Meeting of The American Dietetic Association in Los Angeles, on August 27, 1959.

dietitians, nurses, administrators, kitchen employees, nurses aides, maintenance staff, and others.

Ordinarily, we feel that the written word is one of the most effective means of communication because there is a permanent record. There are, of course, many inadequate written communications. Some are unclear, poorly written, or confusing. There can be too many written messages, or they may be too long, which also takes the "commune" out of communication. Lack of "feed-back" is a real disadvantage of any one-way communication.

What is involved in good communication? Good communication includes the following dimensions: (a) verbal, (b) visual, (c) emotional, and (d) spiritual. It is not difficult to relate these dimensions to a specific operation.

Friction within the kitchen staff or friction between one professional group and another within the hospital can be due to poor communication. The size of the group or the size of the organization may be a barrier to developing acceptable communication or instruction. A person receiving a written communication does not understand what it means and therefore cannot act properly. It may be necessary to improve language competence. Certainly an age and sex difference between supervisor and worker may create communication barriers.

Some supervisors and workers have difficulty communicating with the others because they do not *want* to understand the other's attitude. The attitudinal barrier must be approached as any other problem where learning is involved, since attitudes are learned. Therefore, to change an attitude, new learning must take place. The simple procedure for teaching a skill is not, of course, adequate for teaching new attitudes. A much more complex approach usually taking a longer time is needed. If, for example, a cook on one shift purposely does not get materials ready properly for the cook on the next shift, more may be involved than telling the first cook to improve work habits. The change may require a careful study of the motives and other psychologic factors involved, followed by a detailed plan of action to take place over a period of time.

The concepts and experience or lack of experience may cause people to communicate poorly. The dietitian may *tell* a worker repeatedly not to touch food with her fingers when preparing trays, yet the worker persists in pushing the meat off the fork onto the plate with her fingers. A lack of understanding of bacteriology may be the cause of the problem.

There are also pervasive cultural concepts which prevent communication. Workers from the lower socio-economic and educational levels can have real problems of communication on matters related to chemistry, nutrition, sanitation, and language. Necessary communication can be blocked between various work groups within the organization because of difference in socio-economic-educational levels, personal factors, confusing administrative practices, or poorly defined line and staff relationships.

There are many possible attitudinal and social barriers to communication. Both the supervisor and the worker must be "in tune." Maintaining the quality of empathy is essential for a good working climate. Face-to-face relationships and accessibility are basic for good communication. All persons involved must conduct themselves with integrity. The attitude toward learning the skills of communication is fundamental; if it is not positive, motivation must be used to develop an acceptable attitude.

Motivating the Learner

There are many ways to "reach" an individual. One—and the most difficult—is through knowledge itself. Some feel that knowledge itself is self-motivating. This is not necessarily true. The teacher or instructor is not a mere dispenser of knowledge. There are those who believe, of course, that motivation springs from understanding and understanding comes from knowledge. This is far from true for many individuals. Facts in themselves are not self-energizing. Knowledge itself does not guarantee appropriate behavior. We all know of many cases where an individual was told how to do something but either did not do it or did it incorrectly. Here is a simple equation for reaching acceptable behavior through use of knowledge:

suitable motives + relevant knowledge + necessary skill = appropriate behavior

Another and more easily used motivating device deals with biologic or organic motives. These include hunger, thirst, and persistent noxious stimulation, such as unfavorable temperature conditions and primary likes and dislikes. The food service ought to satisfy the hunger and thirst motivation, but constant unfavorable temperatures or working conditions and likes and dislikes may be a problem.

A third category of motivation deals with social motives. One aspect here is the gregarious nature of most persons which can be used in motivation. Another is the prestige factor. Use of such factors as the status symbols of rank, position, and title are usually real motivators. Age and sex difference affect motivation. Other social motives deal with individual variations, anticipation, the attitude of the "in-group," what we think of ourselves, relationship between our role and our self-concept, and how we feel about others.

A fourth factor in motivation is security. This is not specific as in the case of hunger and thirst, but deals with an individual's learning power as related to the desire for personal and national security.

A last category deals with so-called autonomous activities, such as self-motivation, self-satisfaction, recreation, and ideals.

When people are self-motivated to do top quality work, the supervisor, too, feels a real sense of accomplishment. There is much more to motivating an individual to learn even a skill than just getting his attention. The factors of communication and motivation become even more involved as we move into group-work situations.

The Buzz Session

Much can be accomplished through the exchange of ideas and information within a group. The use of the buzz session is a good technique for quickly getting individuals and small groups thinking as a part of a large group. With this technique, the large group is divided into small groups of four to six people. Each small group is asked to record its specific responses to a specific question and report before the whole group after a period of 3 to 6 min. Many more helpful ideas come from buzz groups than from a total large group discussion. The buzz session is important when people do not know each other well or do not identify themselves with a problem or suggestion before the total group.

Role Playing

Role playing is a technique for helping persons see another point of view. Through choosing a real problem where there are strained relations and quickly preparing two individuals to play the other person's role for 3 to 5 min., the players and the audience can gain new insights into the problem and improve their attitudes toward each other. The procedure may or may not take on a humorous angle. Quite often humor comes into play which is of great importance in reducing tension. With reasonable leadership and reasonable people assisting, it is usually possible to get persons to assist in this procedure for a short time, which results in an additudinal change on the part of the participants. The listeners and players often get new insights which will enable all concerned to approach the problem from new points of view. Successful role-playing activities *do* change behavior.

Brainstorming

Brainstorming can be very useful in helping to solve certain problems through obtaining many ideas presented rapidly. Here are five guide lines to use in brainstorming:

(a) Judgment is ruled out.
(b) Any ideas may be presented.
(c) Quantity is wanted.
(d) "Hitch-thinking" is allowed. That is, if you can add to another's idea, feel free to do so.
(e) Make each point specific.

By following these simple instructions, it is possible for a group to challenge themselves and reveal some new ideas.

Other Group Teaching Procedures

Dietitians who have attended Annual Meetings of The American Dietetic Association have experienced and learned-through-doing some individual and group teaching procedures. There are, in addition, other methods which are reasonably common. One, common to all, is the group discussion. The leader must ordinarily do some pre-planning and yet not make decisions for the group. He must be a motivator and summarizer. Participants must contribute without dominating the discussion. The panel discussion is helpful for interchange of ideas of a few before a group. From two to five speakers can present particular points of view on a subject before a group in a symposium. The use of a specialist in conjunction with the group is common. The question-answer technique is easy to organize. Demonstration may be performed. The field trip is always interesting for seeing specifics and/or seeing an action in process. Another technique is the film forum which should not be overlooked as a method of teaching. An excellent 30-min. film, entitled "How to Conduct a Discussion," has been released by Encyclopedia Britannica. In addition to using the four-step method of teaching a skill, there are these various group processes to be used for teaching, developing attitudes, and improving working relationships.

Use of Instructional Aids

The supervisor also needs to know some of the simple techniques and materials to use in relaying information. Working with the actual materials being described or discussed is far better than studying a description of them. If the real device is complicated, a mock-up may be used to advantage.

A flip-chart is helpful for quick and ready reference in presenting large prepared materials. Such charts can be easily moved from one location to another. The giant scratch pad, a variation of the flip-chart, may be used at any location to describe a simple operation or list simple steps of a procedure.

Semi-permanent marking can be made on the chalk board by using soft colored chalk previously soaked in a concentrated sugar solution. This technique is helpful for listing changing schedules or showing how processes may be performed in several different ways. A wet sponge will erase the marks. The damp chalk should be stored in a tight jar.

The use of the felt-tip pen is excellent for diagraming or listing information with a small group. Two-by-two slides in color or black and white are effective for motivating and bringing information to a group. Certainly, 8 or 16 mm. black and white or color film, locally produced to educate the staff can be useful. There are a number of recordings available from publishers and educational institutions on various subjects, including methods of

teaching. The use of pencil and paper should not be overlooked. Another material to be used in instruction is the flannel board for your own or purchased materials. Posters and prepared charts, some of which will form a permanent or semi-permanent exhibit in the work or other areas have instructional value. The "cone of experience," which shows how good instruction is related to actual experiences, emphasizes the use of real materials.

Next Steps

There are many factors in teaching that are not included here. As we look ahead to developing greater competence in teaching, it will be necessary to understand individual differences, readiness to learn, emotions, aptitudes, more about attitudes, and the complicated process of how people learn. In a particular food service operation it may be desirable to test persons for certain abilities. The supervisor may need more understanding and competence in counseling and interviewing as applied to proper placement of the worker. We have touched on none of these factors in this paper; yet enough information has been presented to enable each supervisor to improve the efficiency of her workers in the food service responsibilities.

Learning-by-doing through teaching is an effective method, when used with skilled leadership, whether the goal is learning a skill in the kitchen or developing better working relationships within the total organization. Adequate preparation on the part of the instructor and the group is essential for the success of any learning activity.

Have faith in yourself. Your work is important. As you lead, teach, help, and work with others, you will continually have revealed to you the meaning of the words of the famous psychologist, William James, who said, "Sow an action and you reap a habit, sow a habit and you reap a character, sow a character and you reap a destiny."

Why Exaggerate?

In a talk given to the advertising and selling course of the Advertising Club of New York, Walter Weir, Chairman of Donahue & Co., Inc., made a cogent point about the reason for truth in advertising which I believe bears repeating at this time. Mr. Weir said, and I am excerpting certain paragraphs from his speech, which are not contiguous, although I am quoting them as such because they point up his central theme:

"Why adhere strictly to the truth? Why not exaggerate—just a *little?* Keep within legal limits, of course, so you and your client will not be sued; but to be just a little more certain the copy will sell, why not claim just a little more than the product will or can do? They're only words you're using. And if the product doesn't move in the volume expected, some other agency will get the account. Besides, the overriding purpose of advertising is to *sell.*

"I'm sure you have had thoughts such as these running through your head at one time or another. If they seem a little rumpled and unsightly on the moral side, you found them completely proper and even correct on the economic side.

"Only they aren't.

"If you cause consumers to buy your client's product because of the claims you make for it—and, once they buy it, they find the product does not live up to those claims—obviously, they do not buy a second time. They turn to another product—and your client only suffers. *It is a scientific, not a moral fact, that a lack in the product cannot possibly be compensated for by a lie in the advertising* [italics mine].

"It is for these reasons that I urge you, if you wish to create successful advertising, to stick to the facts, to eschew exaggeration, to avoid the little white lie no matter what your temptation to employ it. It doesn't work. No matter how much we wish to delude ourselves, we wind up facing the inescapable facts of life. We confront reality—not life as we might like to imagine it. And advertising which deludes the public, which deceives it no matter how slightly, is unscientific, is advertising which flies in the face of reality."

Mr. Weir's point is well taken and it is one that many of us in the pressure kettle of competitive advertising tend to overlook. We have a heritage of believability in advertising and we must preserve that heritage if we are to continue to grow in strength and in pride.

In this, all of us—advertisers, agency and media—have a mutual responsibility, and we must make a united effort to preserve and to increase our heritage of public believability. And we must do it ourselves with a minimum reliance on government.—*Robert T. Lund. Reprinted with permission from* Printer's Ink, *February 26, 1960.*

Make Your Own Visual Aids!

When you make a presentation, you have a captive audience—they can't turn you off or change to another channel—but they can *fail to understand, fail to listen,* and *fail to stay,* or come back! Figure up the cumulative time being offered by your audience at your next presentation! It may be frightening because it is not uncommon for the figure to add up to dollars per minute! Unless you take advantage of each minute to use every means to accomplish your purpose, you and the audience both will come out on the short end.

An effective presentation demands three steps in preparation: (a) determine your objective—what you want your audience to do after the presentation is over; (b) outline the subject matter—list only the basic points necessary to accomplish the objective; and (c) visualize each point.

About 82 per cent of our impressions are gained through sight, and visual aids make use of sight. We know that words alone result in 62 per cent retention at the time a lecture is given, but only 20 per cent at the end of three weeks. You can double the retention by *showing* your audience the printed word in addition to speaking, but the use of actual objects will increase the retention *six* times!

I have yet to see an artist who can draw a bottle of milk that looks more realistic than an actual bottle of milk. Real objects affect all five senses (looking, listening, handling, tasting, and smelling). They are familiar to the audience and therefore don't detract as gadgets often do. They enable you to inject action into your presentation.

If it is impossible or impractical to use the real object, then consider a model. You are still dealing with three dimensions and will appeal to all five senses as in the case of real objects. *Life-size* models can be used when you have difficulty in keeping actual materials, i.e., a piece of steak. *Miniature* models are practical when you are talking about objects too large to use in meetings, such as kitchen arrangements and food displays. *Enlarged* models are necessary when the real thing is too small for the audience to see detail, such as a cross section of a wheat kernel or bacterial formations. *Animated* models, or gadgets, can be helpful if used properly, but use only to emphasize a point. Never let a visual interfere with your message. If the audience becomes conscious of your gadgets as such, then your message is lost.

The "active graphic" ranks high as an effective visual because it builds your story step by step in front of the audience. It gives the impression that you are doing it specifically for them and has the psychologic advantage of leading them by the hand through your message.

The common *chalkboard* is still one of the more effective of the active graphics. We have found that a green board and yellow chalk give the best visibility. A homemade chalkboard can be made by painting any smooth surface, such as metal, hardboard, or plywood, with chalkboard slating available at paint stores.

Flannelboards have been widely used because they allow those without ability to draw or write well to use ready-made materials. With them, a background of flannel or similar napped material serves as a base for cutouts. To make them stick to the flannel, the cutouts can be backed with a variety of materials—sandpaper, felt, flannel, commercial flockings, or suede. You can also use styrofoam, sponge rubber, napped rubber sheet, foam plastic, darning yarn, shoe insoles, and even your desk blotter.

Magnetboards are rapidly replacing flannelboards because of the more positive adhesion of the cutouts, plus the fact that materials can be overlayed to build up your story. The magnetboard must be of ferrous material—light weight alloys such as aluminum and magnesium will not work. About a 28-gage sheet metal seems to work satisfactorily. Back the materials to be placed on the magnetboard with small magnets so they will hold when they come in contact with the metal.

A combination *chalkboard-flannelboard-magnetboard* can be made from a piece of sheet metal 36 by 48 in. Paint one side with two coats of chalkboard slating and cover the reverse side with flannel. Lap the flannel over the edges of the metal and hold in place by framing with do-it-yourself aluminum storm window sash.

Acetate overlays permit you to supplement original messages by adding acetate sheets, one at a time, to add trend lines, changes in outlines, wording, and so on. Acetates can be purchased that will take common paints and inks, or special paints and inks are also available.

A *movable pie chart* is made by cutting a series of circles from different colors of art board. Cut each circle to the center (the radius) and then, by interlocking them, you have a movable pie chart that can be used to visualize any subject where you are dealing with parts of a whole. If you calibrate the circles counterclockwise, you will be able to tell immediately when you have the desired percentages.

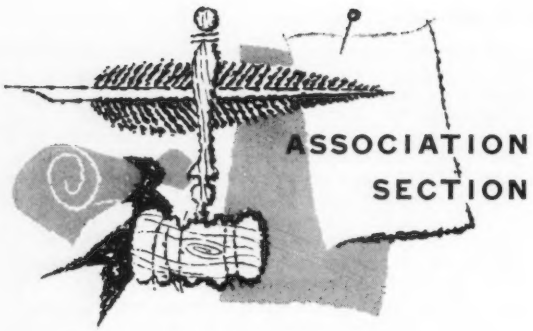
A *movable bar chart* can be made by painting a piece of tempered masonite with green chalkboard paint so you can write on it. Cut a series of slots near the top and bottom of the board. Bands of elastic webbing can form the movable bars by running the elastic through the slots and fastening the ends together on the reverse side. Dip half of each plastic band in dye or sew two colors together so you can raise and lower each bar.

Newsprint pads are also becoming popular. Use newspaper stock obtainable at your local newspaper office. These pads have two advantages over the chalkboard: first, you don't erase a message to put up another; you simply turn the page and use a fresh sheet. Second, you can pre-arrange material before a meeting. By supplementing artwork previously done or by tracing over light pencil outlines, you can give the impression of being able to do freehand drawing. You can use colored chalks, marking crayons, or felt nibbed pens on newsprint and the visibility will be better than even the yellow chalk on the green chalkboard.

When you have audiences of 100 or more, it is advisable to go to some form of projection, for it will be difficult for audiences of that size to see charts, posters, and models, even if lighting, seating, color combinations, and other physical conditions are just right. Remember that a visual that cannot be seen is worse than no visual at all!

Usually you have little control over the meeting room, but insofar as possible, strive for the preferred arrangement: the first row of seats should be not closer than two and a half times the width of the screen, the last row no farther than six times the width, and no one should sit beyond 30 degrees from the line of projection unless a wide angle screen is used.

You are not going to use *all* forms of visualization in your next presentation! Some of them are more suited to the occasion than others, and your likes and dislikes will influence your choice. But if you are concerned with the *effect* of your message rather than use the *exposure,* I think you will admit that some form of visualization is necessary.—*Donald T. Schild, Extension Visual Specialist, University of California, Berkeley, speaking at the 42nd Annual Meeting of The American Dietetic Association in Los Angeles on August 25, 1959.*



Mrs. West Is Honored by Marjorie Hulsizer Copher Award

Each year, the highlight of the program for the Annual Banquet of The American Dietetic Association is the presentation of the Marjorie Hulsizer Copher Award—the highest honor the Association confers. On October 20, Bessie Brooks West, Past-President of The American Dietetic Association and Professor Emeritus of Kansas State University, was so honored in Cleveland.

The Award carries with it an honorarium involving the income from a fund now totalling $15,000 established by Dr. Glover H. Copher as a memorial to his wife, a leader in dietetics until her death in 1935. The fund is administered by the Trustees of Barnes Hospital, St. Louis, where Mrs. Copher was Director of Dietetics until her marriage. This year's presentation of the Award was made by Dr. Frank R. Bradley, Director of Barnes Hospital. He said:

The Marjorie Hulsizer Copher Award—the highest award for distinguished service in the field of dietetics—takes into consideration that the profession of dietetics is both a science and an art. Both of these attributes require teaching and training. The dietitian's teaching and training—or lack of it—and her conduct will be the major influence on the profession and practice of dietetics.

It will be helpful if we pause to discuss what we mean by "teaching dietitians." What we say may be considered complex, but actually this is not true—it is complete in its concept and execution and not complex. What we mean is to teach, instruct, educate, train, discipline, and school, so that the student is able to practice dietetics. "To teach" implies the imparting of information so that the student may acquire knowledge and skill; "to instruct," the methodical furnishing of knowledge possessed by the faculty and in textbooks; "to train," subjecting the student to such drill as will fit her for carrying out the dietary function; "to discipline," training or schooling the student in both accepting discipline and in self-discipline, in that which is hard to bear; "to educate," the bringing out of capabilities latent in the individual student. We realize that "education is something intangible and unpredictable. It comes from within the student; it is the student's own doing, or rather, it happens to her—sometimes because of the teaching she has had, sometimes in spite of it."

In addition to what we have just said, the faculty must have the vision of purpose and be able to inspire the student with the love of dietetics—a belief in its necessity and usefulness.

One of the greatest needs in dietetics, and I speak particularly of hospital dietetics, is the need for better administrative dietitians. A rapidly expanding hospital system calls urgently for more and better tools of administration and an increased understanding of the art of administration. This is particularly true in the dietary department. The shortage of trained administrators in dietetics has created a vacuum. Nature hates a vacuum. It is not surprising, then, that food management firms have tended to fill this vacuum and they will continue to do so, unless the dietetic profession, schools of home economics, and hospitals train more dietary administrators. It is essential that we, who, because of our experience and interest, are the leaders in The American Dietetic Association, schools of home economics, and hospital administration, make conscious effort to inspire students who have the ability to major in dietetics and dietetic interns to look forward to a career in administration of a dietary department.

We need further to emphasize that academic training, essential as it is, cannot do the entire job of training administrative dietitians. We need to provide, as medicine has provided through its graduate training of interns and residents, an opportunity for the dietitian to gain experience in the art of administration. It takes hard, long, and honest plugging to be able to think, act, and feel as a mature administrator. We need further to realize that the production of work, especially in a hospital, is essential. Without good administration, work is not forthcoming. We need to realize that work is a purposeful activity and is the integrating force in society and in a profession dedicated to service to our fellow man.

To be a good administrator, a person must know what he is trying to accomplish and has to learn to get along with fellow workers, particularly the heads of other hospital departments. A profession such as dietetics can only obtain continuity of purpose to match its mental images of dietetics when administrators combine reality with production.

Mrs. West presided at the 1946 convention of The American Dietetic Association in Cincinnati, when the second annual Marjorie Hulsizer Copher Award was made. It is significant, therefore, that she is now a recipient of that award.

Bessie Brooks West, outstanding teacher and author in the field of institutional management and food service in institutions, you have brought from your knowledge in these fields so important to dietetics and, particularly with your long association and service for The American Dietetic Association, a great contribution. You are a leader in your profession, sound in judgment and possessing the qualities of common sense, initiative, and enthusiasm. You rank high among those who have advanced dietetic science and the status of the dietetic profession. As Past-President of your organization, you have made marked contributions in strengthening the approved internship programs in dietetics, instituting a consultation service and an adequate library for the Association, increasing public relations activities and expanding the staff of the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION. You have served capably and loyally. It is a great and sincere pleasure that we welcome you to the ranks of those distinguished members of your profession who have received the Marjorie Hulsizer Copher Award in Dietetics.

In accepting the Marjorie Hulsizer Copher Award, Mrs. West said:

It was my privilege to present the second Marjorie Hulsizer Copher Award to Mary Pascoe Huddleson in 1946. It is especially meaningful to me tonight to receive such an honor on behalf of all of you.

I heartily agree with those who believe that the only reason for accepting any personal honor is that it is indicative of the extent to which the recipient has been given the opportunity to serve.

When the invitation was received from the Executive Board to join the long line of fine women in our profession who have been so honored, my thoughts turned to my colleagues and students at Kansas State University. They are the friends who have given me courage and inspiration to contribute my small part to the growth of our great profession and Association. It is to them—our faculty and students who have made up our professional family during my association with The American Dietetic Association—that I express my deep gratitude for making this award a reality. Tonight it is my privilege to pay tribute to all who have made this honor possible.

You, who are here with us, and our members who are giving service throughout the world have been influenced by the social and economic forces at work during your student days and throughout your professional life. The difficult years of the depression, the demanding war period, and the uneasy atomic age leave their influence on all of us. The problems that lie ahead in the uncertain era of rockets, jets, and the exploration of unlimited space are even more challenging.

There are many meanings to be found in the rapidly changing profession of dietetics. Our immediate task as members of the dietetic profession is to recognize the need for interpreting and solving the problems resulting from these changes. We must be concerned increasingly with our contribution through three related areas: the health of the nation through the maintenance and improvement of good nutrition; recruitment for our profession, self-improvement, and active participation in Association activity; and community responsibility.

We need look no further regarding our responsibility than to read carefully and with greater appreciation and understanding than ever before, the purpose of The American Dietetic Association as given to us by our founders. This responsibility to contribute our knowledge and talents to the health of human beings through better nutrition was too well defined by our charter members to need a review here.

Recruitment of capable young men and women for our profession remains our number one responsibility. We have been given the tools by our hard-working Headquarters staff and generous friends. Are we using the films, the leaflets, the slides to make the task easier and the results more productive? The ways and means to develop a strong recruiting program are yours for the asking. How effectively these tools are used is your decision. Our need to increase the number of dietitians is urgent, always remembering, of course, that we cannot separate quantity and quality in the recruitment.

It is almost a cliché that an organization does not make men but rather it is men who make organizations. There is no better example of that truism than our own Association. Our members—some 14,000 of them—have made us the proud profession that we are. Those of us known to some of you as "the old guard," are eager to have you, the young members, take the reins. We are aware, as we hope you are, that no building can be done without active and dedicated participation.

Darwin made the sage observation that there are more people with adequate brains than we think there are, but they lack that quality of enthusiasm that is hard to define. He believed there is no such thing as unskilled labor; there are only unskilled laborers. The members of any group soon become "unskilled laborers" if they fail to participate with enthusiasm in the activities of their professional organization. No one can know the satisfaction derived from shared leadership unless she helps to carry the load. Are we, as individuals, participating creatively or holding back progress of our Association by negative criticism? This question can be answered best by each of you.

I urge you not to be content to "park on some one else's nickel." There are already too many people who have adopted this philosophy. My plea to you young members is to accept your share of responsibility and develop your potential leadership. You will find it a rewarding experience. We can give constructive leadership in our participation only through self-improvement and professional advancement—through graduate study, research, reading, and taking specific short courses.

Whether we find our work in hospitals, in industry, or business; in commercial food service; or in the home, church, or school, we are contributing to the stability of our communities and to the growth of our profession. Justice Oliver Wendell Holmes once said that life is not the solving of a problem—it is the painting of a picture. If this is true, our aim must be to develop our resources to their full capacity so that the picture continues to gain in depth and significance.

The citation engraved on the Marjorie Hulsizer Copher Award plaque which Mrs. West received reads: "IN RECOGNITION OF HER CONTRIBUTIONS TO THE EDUCATION OF DIETITIANS—AS TEACHER, CONSULTANT, WRITER; AND HER DEVOTED SERVICE TO THE AMERICAN DIETETIC ASSOCIATION AS SECRETARY, PRESIDENT, AND THE FIRST CONTINUING EDUCATION SERVICES DIRECTOR. HER FRIENDLINESS, UNDERSTANDING, SINCERITY, AND CONTAGIOUS ENTHUSIASM ARE AN INSPIRATION TO ASSOCIATES AND MEMBERS OF THE PROFESSION."

Dr. Elvehjem Becomes Honorary Member of A.D.A.

HONORARY MEMBERSHIP in The American Dietetic Association was conferred upon Conrad Arnold Elvehjem, Ph.D., President of the University of Wisconsin, at the Annual Banquet of the Association in Cleveland on October 20. In making the announcement, Doris Johnson, Ph.D., President of the Association, said:

Honorary membership in The American Dietetic Association is given to those people whom we wish to recognize for their valuable contribution to our profession. In so doing, we ourselves are honored.

One person, who is known to all of us by name and to many of us in person, has made outstanding contributions to the science of nutrition over a long and active career as a biochemist. I need not remind you of his role in the discovery of niacin, or of his vast amount of work in the area of amino acids and in enzyme chemistry, to name but a few. The presently well known Department of Biochemistry at the University of Wisconsin is essentially the result of his handiwork.

Many students have felt the influence of his personality, both as a scientist and as a teacher. His con-

scientious devotion to work has been an example to all who have known him. The training in basic scientific investigation given his students has led many of them also to make noteworthy contributions to the science of nutrition.

He is sought for his advice, as represented by his service on a variety of important boards, committees, and councils, which has resulted in major influences on the science and practice of nutrition.

He is known as an able administrator and presently is President of the University of Wisconsin, where he had previously been Dean of the Graduate School and Chairman of the Department of Biochemistry.

We have already appreciated his many talents, for he has been a member of the Advisory Board of The American Dietetic Association for the past two years and will serve as its Chairman for the coming year.

It is indeed a great honor and personal pleasure to present honorary membership in The American Dietetic Association to Dr. Conrad Arnold Elvehjem. Dr. Elvehjem, we, the members of The American Dietetic Association, are highly honored to have you join us as an honorary member.

Dr. Elvehjem's citation reads: *The American Dietetic Association presents Honorary Membership to Conrad Arnold Elvehjem: Original and imaginative research investigator whose pioneering experiments on the nutritional requirements for the inorganic elements, the function and relationships of the vitamins of the B-complex and many others have provided the basic knowledge necessary for advancement in dietary practices; gifted and able teacher whose writings, lectures, and classroom presentations have, because of their comprehension, clear interpretation, and good judgment, been a sane guide to nutritionists everywhere; capable and distinguished administrator, characterized by decisiveness and courage, yet always retaining a willing flexibility, personal humility, and a ready access for all who serve under him; recognized world citizen in nutrition who in his grasp of the theoretical and abstract has never shunned using his talents to apply nutritional knowledge for the good of all people.*

Mary Swartz Rose Fellowship Goes to Jerry Margaret Rivers

AT THE Annual Banquet of The American Dietetic Association, held in Cleveland on October 20, the Mary Swartz Rose Fellowship for 1960 was awarded to Jerry Margaret Rivers. Presentation was made by Gladys Hartley Roehm, Ph.D., Chairman of the Association's Awards, Scholarship, and Loan Fund Board, and Professor of Home Economics, Montana State College, Bozeman. She said:

Mary Swartz Rose was my friend and my most inspiring teacher. She gave life to nutrition teaching. Henry C. Sherman's tribute[1] to her is particularly apt: "[She] linked the findings of the nutrition laboratory with the daily lives of people. [She planned her research] with reference to the needs of our science . . . and without any anxiety as to individual fame." This, indeed, is an appreciation of Dr. Rose, the scientist.

Lydia J. Roberts[2] and Helen A. Hunscher[3] have eloquently expressed on previous occasions the scientific and professional accomplishments of Dr. Rose. Tonight I would like to affectionately honor the delightful and personable woman, Mrs. Rose.

The autumn that Jerry Rivers, our recipient this year of the Mary Swartz Rose Fellowship, was born was the fall that I first had the privilege of attending one of Dr. Rose's classes. This was a small class on "Teaching Nutrition to Boys and Girls"; it was new and it was a challenge. Little did we dream then that we were a part of "history in the making." Dr. Rose was the first in the United States to attempt the teaching of scientific nutrition to classes of elementary school children. The growth of this idea has now been traced by Clara Mae Taylor[4].

We, Mrs. Rose and her class, used to walk from Teachers College in New York City to Public School 157 on the edge of Harlem, only five or six blocks away, to teach nutrition at various grade levels to the children there. This was a fascinating class. Because I learned so much from her about how nutrition education can be brought to everyone, especially children, I organized a similar class in an elementary school in Tucson when I taught at the University of Arizona. Today, Montana is benefiting from her ideas and techniques in college teaching and in the state school lunch program. Thus, for thirty-one years, this teacher and her teachings have lived. Mary Swartz Rose made herself felt, not just at the time, but through the years.

But *how* did she teach? In Mrs. Rose's class that fall we were concerned with making lesson plans for the various grades we were to teach. I had prepared what I considered a plan to "out-plan" all plans for the fourth grade. I suggested that the child might enjoy the experience of making French toast for breakfast. He could use the oven or a frying pan. Then I advised various types of garnishes to "pretty" it. This was tied in with all the food value in each ingredient in French toast and in the garnish. As I elaborated this lesson to Dr. Rose, her eyes sparkled and she laughed delightfully whenever I made a "clever" point. When I was finished, she sobered, straightened her slight frame in her chair, and said, "This is fine, Miss Hartley, but now tell me how you would teach this fine lesson if the child had no cook stove in his home."

This was Mrs. Rose—not discarding a lesson plan because it was impractical, but prodding her students to meet the challenge of the day by building on what they had presented. She believed that education in good food habits is quite as important as any other part of the elementary curriculum. She combined effective teaching with versatility in the classroom, the laboratory, and her own home.

She was a true home economist, spending much time with her husband and her son, Richard, and working happily in the garden which surrounded their home.

Grace MacLeod, her friend and colleague, wrote[5] shortly after Mrs. Rose's death: "She could turn from

[1]Sherman, H. C.: Mary Swartz Rose—October 31, 1874–February 1, 1941: An appreciation. J. Nutrition 21: 209, 1941.

[2]Roberts, L. J.: Myrtle L. Brown becomes 1955 Mary Swartz Rose Fellow. J. Am. Dietet. A. 31: 1239, 1955.

[3]Hunscher, H.: Aimee N. Moore becomes Mary Swartz Rose Fellow. J. Am. Dietet. A. 32: 1185, 1956.

[4]Taylor, C. M.: Nutrition education demonstrations. USDA Nutrition Committee News, May-June 1960.

[5]MacLeod, G.: Mary Swartz Rose. J. Home Econ. 33: 221, 1941.

exciting scientific research to the preparation for a party in her home, the games and refreshments for which were the products of her own ingenuity and her deftness in cookery." And what fun those parties were! It was not uncommon for Mrs. Rose to invite a few of us to her home after a particularly hard day in the laboratory. Of course, we, the guests, at five o'clock had trudged wearily to our dormitory rooms, rested, bathed, and dressed for our party across the river, only to find when we arrived that Mrs. Rose, without taking time for rest, had prepared a delightful repast for us weaklings. She was a dynamo of energy, and she kept all of those about her eager, fascinated, and delighted that we were fortunate enough to know her.

A delightful story about Mrs. Rose was related to me by Dr. MacLeod as told by Mr. Rose. He was in a group of men who were discussing the question of wives having careers. When the men asked Mr. Rose how he felt about it, he replied, "Well, I'm glad my wife has a career; I'd hate to see her spend all her energy on *just* me." No one enjoyed that remark more than Mrs. Rose.

One of my most prized possessions is a short note which Mrs. Rose sent to me shortly after our first baby was born. It says: "We were delighted to hear about the coming of a new 'nutrition baby' into the world. It is a great joy to know that Richard will have the best kind of opportunity to grow up under happy circumstances, and we congratulate his parents on having the opportunity to enjoy him." How many times I have wished that I could remember to be as thoughtful of my students as Mrs. Rose was of hers!

In 1948, the Nutrition Foundation granted to The American Dietetic Association an annual, thousand-dollar award. With this money the Association chose to establish a fellowship for graduate study in nutrition or related fields, now known as the Mary Swartz Rose Fellowship. The Awards, Scholarship, and Loan Fund Board of the Association selects the person whom the members of The Association wish to honor. It is an honor, indeed, to be named the recipient of the Mary Swartz Rose Fellowship.

This year, in selecting Miss Rivers, the Board felt that she possessed many of the qualities that Mrs. Rose so admired in a young scientist.

Miss Rivers graduated from Texas Technological College in Lubbock, her home town, in 1951. Following graduation, she accepted a position in public health work, because as she said, "It gave me a chance to see New York City." She earned the Master of Science degree from her alma mater in 1958. In October 1957, she received the Mead Johnson Award for Graduate Study and in the fall of 1958 started work toward the doctoral degree at Pennsylvania State University. Her major is nutrition with a minor in biochemistry. Last year, 1959-60, she served as Graduate Assistant in the Department of Home Economics at Pennsylvania State University. Miss Rivers plans to finish the work for her degree next fall. The title of her thesis is "White Cell Ascorbic Acid Metabolism."

Jerry's friends and teachers at Penn State say that she is one of their favorites. She was President of the Home Economics Graduates Club last year and this year's graduate students have elected her to represent them on the Student-Faculty Board. She is a brilliant student. She belongs to professional groups including The American Dietetic Association. She has a high sense of social responsibility. She is a warm, outgoing, vivacious, and enthusiastic person.

Miss Rivers' "nationality origin" is that of "American Indian." It is indeed a privilege for our Association to bestow this award on a descendant of the original Americans.

Jerry Rivers, you are the twelfth recipient of this award. With this award we, the members of The American Dietetic Association, pay merited honor to you in the name of America's great woman scientist, Mary Swartz Rose. May this award serve you well in the completion of your work for the degree of Doctor of Philosophy in nutrition. When your degree has been granted, I am sure you will have achieved one of Dr. Rose's objectives, namely, "a broadly educated person, sharpened to a point."

Mead Johnson Awards for 1960

Recipients of the Mead Johnson Awards in Dietetics were announced at the Annual Banquet of The American Dietetic Association on October 20 in Cleveland, by Doris Johnson, Ph.D., President of the Association.

The two Mead Johnson Awards for Advanced Graduate Education in Dietetics for 1960-61 were awarded to: *Genevieve Estelle Scheir* of Berkeley, California, who is presently working toward a doctoral degree at the University of California, Berkeley. Miss Scheir holds a bachelor's degree from Kansas State University, a master's degree from Cornell University, and completed a dietetic internship in 1941 at St. Marys Hospital, Rochester, Minnesota; and *Janet Melville Wardlaw* of Islington, Ontario, Canada, who has begun studying for a doctoral degree at The Pennsylvania State University. She is a graduate of the University of Toronto and took a dietetic internship at the Royal Victoria Hospital, Montreal. Each of these awards amounts to $1000.

This year, the number of $500 Mead Johnson Awards for Dietetic Interns was increased from six to ten. The following young women have been named as recipients:

Thelma Sue Arnold, Crowville, Louisiana, who will receive her bachelor's degree in January from Louisiana Polytechnic Institute.

Alice Cynthia Couble, Arlington, Virginia, a graduate of Madison College, who is an intern at Aetna Life Insurance Company, Hartford, Connecticut.

June Graham Davis, Bayou la Batre, Alabama, a graduate of the University of Alabama, who is now a dietetic intern at the Veterans Administration Hospital, Houston.

Joan Louise Hill, Soudan, Minnesota, who received her bachelor's degree from the University of Wyoming this year and is now an intern at Ohio State University, Columbus.

Carolyn Eve Kloss, South Euclid, Ohio, a graduate of Muskingum College, who is currently an intern at the University Hospitals, Cleveland.

Virginia T Miglierini, Milton, Massachusetts, a graduate of Simmons College, who is interning this year at Massachusetts General Hospital, Boston.

Rosemary Rich, Tupelo, Mississippi, a graduate of Mississippi Southern College, who is now a dietetic intern at the State University of Iowa Hospitals, Iowa City.

Marita M. Patrick Riethmiller, of Cincinnati, a graduate of College of Mount St. Joseph on-the-Ohio, who is a dietetic intern at Good Samaritan Hospital, Cincinnati.

Patricia Joan Wallace, Tallmadge, Ohio, a graduate of Indiana University, who is now a dietetic intern at the Veterans Administration Center, Los Angeles.

Marianne Irene Wyant, San Mateo, California, a graduate of the University of California at Davis, who is interning at the State University of Iowa Hospitals, Iowa City.

Emma Seifrit Wins Lydia J. Roberts Essay Award

AT THE Annual Banquet of The American Dietetic Association in Cleveland on October 20, Doris Johnson, Ph.D., President, announced that Emma Seifrit of Reading, Pennsylvania, is the 1960 winner of the Lydia J. Roberts Essay competition. Miss Seifrit, who is Clinical Instructor in Nutrition at Reading Hospital, won the $500 honorarium for her essay, "Changes in Beliefs and Food Practices in Pregnancy." Miss Seifrit is a graduate of Albright College, Reading, and holds a Master of Science degree in nutrition from Drexel Institute, Philadelphia. Her Award-winning essay will be published in a forthcoming issue of the JOURNAL.

Because the Committee felt that a second paper had exceptional merit, honorable mention in this competition was given this year to Margaret C. Warde, Alameda Hospital, Alameda, California.

The competition was inaugurated in 1950, when the Gerber Products Company granted to The American Dietetic Association a sum of $500 annually for a five-year period to be awarded for the best essay on a specified subject in the field of the history of nutrition. This grant was renewed by the Gerber Products Company in 1956 for a second five-year period. The award was named in honor of Dr. Lydia J. Roberts, pioneer in the field of infant feeding.

One more essay will be held to complete the second five-year series. The subject for the essay for the 1960-61 competition will be "World Problems in Infant Care."

Safflower Dates Back to Pre-Christian Era

Current interest in safflower oil runs high, because of its high linoleic acid content and its potential usefulness in lowering serum cholesterol. The following abstract of an article by Hazel E. Perry in the September issue of The Sunflower *of the Kansas Dietetic Association throws some interesting historical sidelights on this plant.*

Safflower has been known by many names. Theophrastus, Galen, and Gerarde wrote about it under the name of "Cnicus." Other names were "carthamus tinctorium," "bastard saffron," and "American saffron."

The safflower plant has been known and used by physicians and lay people since ancient times. Theophrastuse, who died in 287 B.C., mentioned it. According to him, two kinds of safflower plants were known: wild and cultivated. (The USDA today states, however, that safflower will not grow as a weed in the U.S.) The plant is a native of the East Indies, from where it was brought first to Egypt and Southern Europe, then to England, and finally to America.

Earliest uses of safflower were not medicinal. Theophrastus reported that women used the wild safflower with a straight stalk as a distaff. It was also used by natives of the East Indies, who extracted red and yellow coloring from the flower heads, for used as rouge coloring and a dye for fabrics. It was still being used as a dye for rouge as late as 1841, according to Dr. Robert Hooper.

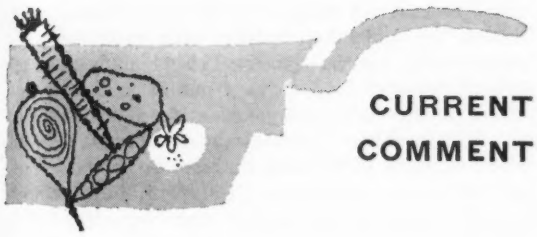
Galen described the use of safflower for medicinal purposes: "Cnicus-seeds may be used as a purgative. Seed also employed as a salve by heating." In 1007, Gerarde was most explicit: "The juice of the seed of bastard Saffron bruised and strained into honied water, or the broth of a chicken and drunke, provoketh to the stoole, and purgeth by seige slimy plegme and sharpe humors. Moreover, it is good against the colicke, and difficultie of taking breath, the cough and stopping of the breft, and is singular against the dropsie. The seed used as aforesaid, and strained into milk, causeth it to curdle and yielde much cruds and maketh it of great force to loose and open the belly. The flowers drunk with honied water openeth the liver, and is good against the jaundice and the flowers are good to colour meat instead of Saffron . . . Of the inward pulpe or substance heereof is made a most famous and excellent composition to purge water with . . . a most singular and effectuall purgation for those who have the dropsie." In 1595, Dodoenes described the same uses of safflower —in almost the same words.

Almost two centuries later, in 1769, William Lewis wrote: "The seeds of carthamus, freed from the shells, have an unctuous sweetish taste, which on chewing them for a little time becomes acrid and disagreeable. They form an emulsion or trituration with water and give out a spirit a little nausious acrid matter. They have been celebrated as a gentle cathartic in doses of a dram or two in substance, and six to eight drams in emulsion, but, as they operate very slowly, and are apt, especially when given in substance, to occasion nauseae, flatulancies and distensions of the stomach, their use has long been laid aside . . . Flowers have been sometimes employed as a coloring drug for alimentary and medicinal substances . . . "

Hooper, in 1841, wrote: "The seeds, freed from their shells, have been celebrated as a gentle cathartic in the dose of one or two drachms. They are also supposed to be diuretic and expectorant; particularly useful in humoral asthma and similar complaints." Later, in 1904, Albert Buch stated: "Florets, dried, are the substance used as aromatic, stimulant, carminative, and anti-spasmodic."

Although the use of the flowers and seeds has been discontinued, the oil from the seed has been found of use in our time. The *Journal of the Medical Association* (169: 2019, 1959) stated that when substituted for fatty acids already in the diet, oil from the safflower seed will reduce serum cholesterol. Safflower oil contains 74.5 per cent linoleic acid and 6.6 per cent saturated fatty acids. It is proposed for clinical use in patients with hypercholesteremia. The dose prescribed amounts to 450 calories.

Thus, the safflower, known to the ancients by various names, has been used for many purposes. First, the stalk, then the flower heads, and later the seeds were thought to be of value. Our refinement has been to extract the oil from the seeds.



CURRENT COMMENT

Notes from the Fifth International Congress on Nutrition

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GLOBAL THINKING about nutrition emphasizes that man's need for nutrients is universal, but that food patterns compatible with good nutrition are endless in variety. In all countries, including our own, improvement is possible. However, proposed changes in any country should be based on a thorough understanding of the local economy and culture.

Representatives of sixty-nine countries presented papers at the Fifth International Congress on Nutrition held in Washington, D.C., September 1 through 7, 1960. The majority of the papers were presented in English. However, the four official languages were English, Spanish, French, and German, and portable earphones provided simultaneous translations for members of the audience.

The First International Congress on Nutrition was held in London in 1946, at which time the International Union of Nutritional Sciences was organized. This society also sponsored subsequent congresses in Switzerland, the Netherlands, and France. Attendance climbed from 900 at the Fourth International Congress in Paris in 1957 to 2258 at the recent meeting in Washington.

Sponsoring organizations of the meeting in this country were the American Institute of Nutrition and the U. S. National Committee, International Union of Nutritional Sciences. President of the Congress was Dr. Charles Glen King; the chairman of the organizing committee was Dr. Paul György; and the general secretary was Dr. Milton O. Lee.

Featured on the program were panel discussions on the following topics: evaluation of nutritional status, proteins and amino acids, effects of processing and additives, lipids, animal nutrition and food production, maternal and infant feeding, and new possibilities in nutritional research.

Preprints of the papers on which these panel discussions were based were given to all who attended the scientific sessions. At the beginning of these sessions, each participant had an opportunity to speak briefly on his topic. Following these short summaries, written questions from the audience formed the basis of their discussion.

In addition to these meetings, 10-min. papers reporting unpublished original research were presented on selected topics. An all-day symposium closed the Congress with a consideration of the still insoluble problems of matching the world food resources to the world food needs.

The proceedings of the Congress are to be published as a supplement to *Federation Proceedings.*

Nutritional Status: World Wide

Protein malnutrition is considered the number one nutritional problem on a global basis. The most serious consequences of this condition are seen in the disease, kwashiorkor, in young children past weaning. However, as Dr. John F. Brock of South Africa emphasized, protein malnutrition is a public health concept and not an exact definition. Foods high in protein are also high in minerals and vitamins, and thus, depending on the particular combination of foods used, diets short in protein are also deficient in other nutrients.

Beriberi, endemic goiter, and clinical signs of riboflavin and vitamin A deficiencies are widely prevalent. The aggravating effects on nutritional deficiencies of infection, parasites, and other types of stress were emphasized. In certain diseases commonly found in malnourished people, an effect of nutrition is believed to exist, but has not been proved. Examples are certain liver diseases and calculus disease of the urinary tract (kidney stones and bladder stones).

A few examples of reports from specific countries may be enlightening. F. Verzár and D. Gsell of Switzerland reported that both rickets and anemia are found in Alpine villages as a consequence of a shift from pure agriculture to a semi-industrial society.

Nguyên Lân Dinh reported that diets in Vietnam are chiefly composed of rice with condiments produced from soy, fish, or peanut cakes playing an important part. Arab refugees in the Ghazza Strip suffer from a variety of signs of poor nutrition, including underweight, anemia, ariboflavinosis, and advanced dental caries, according to M. M. El-Sadr of Egypt, whose co-authors were R. K. Gammal, S. Z. Eid, M. B. Hanna, and A. A. Ibrahim.

Poorwo Soedarmo, Indonesia, stated that a meal plan for any given region should be based chiefly on food habits, availability, and price. A meal pattern for Indonesia based on rice, fruit, vegetables, and a protein food, such as fish, is being promoted.

That climate has an effect on nutrition is well recognized. The idea that caloric needs are reduced in the tropics or at high temperatures needs to be re-examined, in the light of the research of C. Frank Consolazio and co-workers of Denver. They found

that men on a constant exercise program needed more calories when outside in the sun (104.5°F.) than indoors (78.8°F.) The increased caloric requirement was believed to result from increased metabolic rate, caloric loss due to sweat vaporization, and increased activity of the sweat glands and of the blood in heat transport. It seems that external heat rather than lowering caloric requirements raises them because of the caloric cost of body adjustment. These tests were conducted in the desert at Yuma, Arizona.

Victor V. Efremov, U.S.S.R., reported on the changes in vitamin requirements under extreme conditions, such as in the Arctic and in the subtropical Central Asian climate. Adding vitamins to the diet improved the performance of workers in the Arctic and shortened the process of acclimatization.

Protein

Dr. Brock of South Africa called the 1950's the "protein era," when protein research flourished and scientists recognized the widespread existence of protein malnutrition. He stated that man's constitution is in part affected by conventional patterns of eating, which in many areas of the world means protein malnutrition. We would take this to mean that differences between people are in part caused by differences in their diet. Improvements directed toward a common nutritional standard will tend to make men more similar in different parts of the world.

Dr. James B. Allison, New Brunswick, New Jersey, presented the concept of an "ideal aminogram," or pattern of essential amino acids ideal for growth, maintenance, and other body functions. Such a concept is of help in evaluating foods in different parts of the world to determine which supplements would do the most good. He cautioned that the proportion of non-essential amino acids is also important and that availability of amino acids will also determine the protein value of foods.

Many foods and vegetable protein mixtures are being studied as a means of combating protein malnutrition. A mixture known as "Incaparina" has been developed by Dr. Nevin S. Scrimshaw and coworkers at the Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, with whole maize, sorghum, and cottonseed flour comprising the major ingredients. It is mixed with water to form a thin gruel called "atole." This mixture is being compared with milk, both in the cure of kwashiorkor and in rat-growth tests. On five-day nitrogen balance trials carried out in children, in which Incaparina was alternated with milk, "Incaparina" resulted in consistently less absorption than milk, but retention equivalent with milk. Its greatest value possibly is in preventive nutrition. It can be sold at retail at a cost of 1 cent a glass, and preliminary trials indicate that the people will buy and use it.

In Taiwan, Ta Cheng Tung, Po Chao Huang, and Chiung Hui Chen are testing many products, the basis for which is the soybean. These include a flaked product fortified by various vitamins and calcium.

The value of milk in supplementing plant proteins is being exploited in certain areas. Dr. R. F. A. Dean, Uganda, is working on biscuits composed of various plant products plus dry skim milk. Natividad Segovia-Riquelme, Maria Anex, and Jorge Mardones of Chile reported on rat experiments which have shown that the most effective supplements to the "poor diet" customary in that country are dry milk, either whole or skim, and fish plus calcium carbonate.

J. D. L. Hansen, South Africa, reported experiments on the relative nutritive values of milk and of maize plus such supplements as fish flour, vegetable protein, or synthetic amino acids. In this, as in a number of other studies, the result obtained with milk was the ideal or standard by which the various combinations were judged. Three criteria were used in determining protein adequacy with children—gain in body weight, serum albumin, and nitrogen balance.

Many other foods are being studied as protein sources, including leaf protein, fish flour, rye flour, and various wheat products The alga, Chlorella, newsworthy because it may feed man in space, is also being assessed as a source of protein for deficient areas.

Maternal and Infant Nutrition

Dr. F. W. Clements, Australia, who served as moderator on a panel on maternal and infant nutrition, characterized this area as "one of the most emotionally charged areas of daily living."

Dr. Derrick B. Jelliffe and F. John Bennett, Uganda, emphasized that a consideration of the cultural and anthropologic factors in any country is basic to attempts to improve nutrition. They suggested that customs should be analyzed under four headings: (a) beneficial customs which should be adopted; (b) neutral customs; (c) unclassifiable, having both advantages and disadvantages; and (d) harmful customs which health educators should try to modify or circumvent. They characterized abrupt weaning and acute maternal deprivation as a harmful custom which often leads to kwashiorkor. They emphasized that health educators need to understand attitudes before they are able to change them.

In many underdeveloped countries, especially in the tropics, hygiene is so poor that bottle-feeding is not a good alternative for breast-feeding. Also, adequate foods for bottle-feeding or supplementary feeding for infants are not available in many of these places.

C. Gopalan and Bhavani Belavady, India, discussed the remarkable ability of women in poor communities in India to nurse their babies. A number of other

speakers at this meeting also stated that in other areas ability to lactate is best in the poorer women and declines in upper socio-economic levels. The feeling appeared to be that psychologic and cultural factors rather than nutrition are related to the better lactation of the poorer women. Dr. Jelliffe of Uganda commented that while this subject needs further study, there are communities which are well fed but unsophisticated, where lactation is satisfactory.

Regarding supplementary foods for the infant, the consensus of the panel appeared to be that too-early introduction of solid foods was unnecessary and possibly has a poor psychologic effect. However, by the age of six months, supplementary foods are necessary. In the second six months of life, breast-fed infants in underdeveloped countries begin to fall behind Western standards of health and growth, and the addition of supplementary foods high in protein should be encouraged.

Dr. R. F. A. Dean, Uganda, described experiments on patients with kwashiorkor prior to treatment that may shed light on the basic biochemical cause of the disease. In these patients, large amounts of nitrogen were being lost in the urine. Attempts to identify some of the nitrogen compounds being excreted has led to the tentative theory that these are purine compounds resulting from the breakdown of nucleic acids in active body tissue. This is believed to be a reflection of body cells being consumed to make up for a dietary lack. With successful treatment, these compounds practically disappear from the urine.

Calcium and Trace Elements

At a session devoted to calcium research, Dr. B. E. C. Nordin of Scotland spoke of his studies on patients with osteoporosis which indicated these people characteristically have a history of low-calcium intake and a reduced ability to adapt to low intakes. Normal individuals react to reduced dietary calcium by excreting less calcium in the urine. Osteoporotic patients are, in general, less able to conserve calcium in this manner. Even in countries such as England with a comparatively high per capita consumption of high-calcium foods, chiefly dairy products, individuals vary so much in the amount of calcium they consume and in their ability to conserve calcium that many will be subject to calcium losses leading to bone demineralization.

Herta Spencer and Joseph Samachson of New York City, reported studies in human beings of the influence of various agents, especially hormones and chemicals related to hormones, on calcium metabolism. Such agents are of particular interest for older people whose calcium retention is poorer than in youth.

Experiments by C. Willet Asling, Berkeley, California, showed that female rats protect their young from the effects of calicum deficiency both during pregnancy and lactation. Although female rats were maintained on calcium-low rations, the offspring had normal bones and showed no signs of calcium deficiency, although the calcium-deficient mothers showed evidence of bone demineralization. If this proves to apply also to human nutrition, the popular opinion that bone growth in the fetus will be maintained at the mother's expense is justified.

A metabolic interrelationship between calcium and body lipids is suggested by the research of J. M. Iacono and C. B. Ammerman of Cincinnati. In starved rabbits, serum calcium fell, while certain blood lipids increased. Feeding calcium to these starved animals restored the serum lipids to normal.

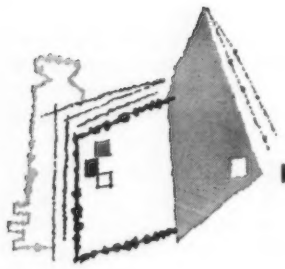
Magnesium is a mineral of renewed interest to nutrition investigators, both because it now seems that it may be deficient in some diets and because of its possible relation to lipid metabolism.

Ruth M. Leverton and associates, Washington, D.C., reported research in the United States which showed that the self-selected diets of young women in this country might indeed contain less than the magnesium requirement. She stated that the body's need for magnesium is related to the body's use of fats.

Other papers emphasized the interrelationship of magnesium with calcium metabolism and the effects of magnesium deficiency on reproduction.

In two papers, fluoridated milk was suggested as a means of protecting newly erupting teeth from dental caries. Dr. L. L. Rusoff, Baton Rouge, Louisiana, described experiments with school children which showed that daily feeding of fluoridated milk significantly reduced dental caries in teeth that erupted during the time the fluoridated milk was given. His co-workers have been: Ben Konikoffy, J. E. Johnston, J. B. Frye, Jr., and W. W. Frye. Rat experiments reported by Klaus G. König of Switzerland showed the post-eruptive inhibition of caries by fluorine, whether in water, milk, or foods.

Decision-making is not an event but a process: it is continuous, and large decisions commonly represent the inevitable piling up of small ones.—*Robert N. Wilson, Medical Sociologist, Judge Baker Guidance Center, Harvard Medical School, writing in* Hospital Administration *4:6, 1959.*



BOOK REVIEWS

Nutritional Evaluation of Food Processing. Edited by Robert S. Harris, Ph.D., and Harry von Loesecke. New York: John Wiley & Sons, Inc., 1960. Cloth. Pp. 612. Price $12.

This excellent book presents a thorough review of the effect of food processing on the nutritional value of foods. Robert S. Harris, in the preface, emphasizes the essentiality of food processing in maintaining a well-fed population and recommends that adverse effects of processing be kept to a minimum. This book was written, then, to give a thorough review of what is known on the effects of processing on foods and ways to minimize nutritional losses.

Thirteen chapters present discussions of the effects of agricultural practices, harvesting and handling, commercial processing, packaging, food preparation (home and large-scale) on food composition and nutrient content. Methods of increasing the nutritive value of foods by vitamin and mineral enrichment and amino acid additions and a splendid summary (sixteen pages) of research on factors affecting utilization of nutrients by the normal organism also are included.

This book, edited by Harris and von Loesecke, is comprised of sections prepared by thirty-one authors. A remarkable job in editing has led to more uniformity of style than one would believe possible under the circumstances. The material is generally organized according to foods of plant origin and of animal origin, and the sections follow, insofar as possible, a similar organization. In some instances, however, the detail given to a topic may be quite out of proportion to that in another section, e.g., twenty-one pages are devoted to a consideration of twelve studies of the effect of large-scale preparation on nutrients of foods of animal origin whereas in another section of the book only two to three pages are used in considering a larger number of studies.

The fact that the book is well indexed, has splendid bibliographies with each chapter, and is prepared by authorities in each area makes it a valuable resource book. It is recommended for food technologists, nutritionists, food chemists, agriculturists, and others who may be interested in this vital subject of ways in which man—through technology—can diversify, extend, and improve his food supply.

The authors are to be congratulated on having compiled from many sources the extensive research on this subject.—*Janice M. Smith, Ph.D. Head, Department of Home Economics, University of Illinois, Urbana.*

Communication Patterns and Incidents. By William V. Haney, Ph.D. Homewood, Illinois: Richard D. Irwin, Inc., 1960. Cloth. Pp. 321. Price $7.20.

This text is a "must" for the library of anyone interested in the subject of communications. The first two of the fourteen chapters are concerned with the communication process and the various factors that affect communication. The last chapter is a summary of the patterns of communication reviewed throughout the book. The remaining chapters follow a similar format with the introduction of the subject and definition of the pattern to be reviewed; the characteristics of the communication; its patterns; the "correctives"; summary; and "incidents."

"By-passing," "allness," "undelayed reactions," and "differentiation failures" are some of the patterns included. "Incidents" are case studies, stories, and incidents related to the patterns. As one would expect, there are no answers to the learning experiences provided by the incident. Instead, the reader or student develops his own answers based on his own evaluation and analysis in terms of his own communication experiences of speaking, listening, writing, reading, and interpersonal relations.

This book would be of particular interest and assistance to those members in such subject areas as institution management, education, and teaching who wish to develop in the student a better understanding of people. Classes for dietetic interns and staff development programs in human relations, management, administration, and conference leadership could be based on the contents of this publication.

There is an excellent and extensive bibliography on communication and related areas. The index to the incidents also makes the book more usable. It is, in addition, easy to read and study. The more mature readers should readily identify and develop a new awareness of communication and a desire to improve his techniques of communication.

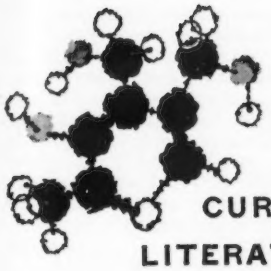
***Farm Journal's* Country Cookbook.** Edited by Nell B. Nichols. Garden City, New York: Doubleday & Company. 1959. Cloth. Pp. 420. Price $4.95.

This beautiful cookbook is as lovely to look at as it is useful to read. From hundreds of recipes appearing in the *Farm Journal* and under the skillful editing of Mrs. Nichols, Food Editor, the volume emerges as different, intriguing, and interesting.

The *Country Cookbook* presupposes some knowledge of cooking, but could be used successfully by any beginning cook. The easily-read recipes and the specific instructions are clear. The fine colorful photographs make it a temptation to leaf through the book, presenting the possibility of adding varieties and new dishes to standard menus.

Arrangements and subjects of chapters are unusual. First are chapters devoted to dishes for guests and favorite foods to take to church suppers, food sales, community picnics, and barbecues, where a wife's talents are on display. Further chapters deal with recipes using staple foods, such as meats, dairy products, fruits and vegetables and other produce of the farm. The chapter, "From Stream and Field," can be useful to anyone, and "Make-Ahead Dishes" and "Quick and Easy Cooking" should be popular with career women who also feed families. "Money Makers"—full of "goodies" to aid those in raising money for PTA's, farm groups, churches and clubs—might also be popular with dietitians in cafeterias, in hospitals, schools, and industry. "Old-Fashioned Recipes," "Regional Dishes," and "Guest Cooks in Our Test Kitchens" were my favorite chapters, since here the recipes are more unusual.

The recipes in this cookbook were tried, used, and tested by five hundred farm women, members of the *Farm Journal's* Family Test Group, according to the preface. Their families, as mine, must have enjoyed this useful research!—*Virginia Monahan Bayles, Houston, Texas.*



CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl Frederick, University of Chicago Clinics; Margene A. Wagstaff, Elmhurst, Illinois; the dietetic interns of Charity Hospital, New Orleans, and of the Veterans Administration Center, Los Angeles.

ACTA SOCIETATIS MEDICORUM UPSALIENSIS (Sweden)

Vol. 65, No. 3, 1960

*A clinical and physiological study of pregnancy in a material from northern Sweden. II. Body weight during and after pregnancy. K. Irhman.—p. 137.

Body Weight and Pregnancy. Results of the determination of body weight during and after pregnancy in 100 women are reported. Weight increased approximately linearly during the second and third trimesters of pregnancy, but remained unchanged during the first trimester. The average weight increase during pregnancy was 10.3 kg. In the women showing the greatest increase in weight (14.8 kg.), an increased frequency of edema of the ankles, the hands, and the face was found. Practically no other classical symptoms of toxemia were observed, and no woman showed signs of a manifest toxemia. There was no difference in the increase of the body weight between the primiparous and multiparous women, or between the heavy and light women. No correlations were found between the infant's birth weight and the mother's prepregnant weight, or the mother's parity. An increase in weight exceeding 500 gm. per week during the second and third trimesters of pregnancy constitutes a signal with regard to the risk of toxemia.

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 8, July-August, 1960

*Regulation of cholesterol biosynthesis and catabolism. D. Kritchevsky, E. Staple, and M. W. Whitehouse.—p. 411.

*Relation of vitamin E to lipid metabolism. R. B. Alfin-Slater.—p. 445.

*Vitamin E and lipid metabolism in man. M. K. Horwitt.—p. 451.

*Studies of adipose tissue in man. A microtechnic for sampling and analysis. J. Hirsch, J. W. Farquhar, E. H. Ahrens, Jr., M. L. Peterson, and W. Stoffel.—p. 499.

*Diet therapy. Interviewing the patient. C. M. Young.—p. 523.

Cholesterol Biosynthesis and Catabolism. The formation of cholesterol by the liver, regulated by a type of homeostatic control, is influenced by the hepatic level of free cholesterol or glycogen, or both, and by the availability of the proper enzymes. The factors affecting the hepatic biosynthesis of cholesterol are detailed, including the influence of dietary composition and fasting. The specific effects on cholesterol synthesis of feeding cholesterol, various steroids, saturated and unsaturated fats and thyroid hormone are reviewed. Also considered are the effects of radiation, glycolysis and various pharmocologic agents. In the degradation of cholesterol, the chief metabolic end products are bile acids, although cholesterol may also be converted into sex hormones and adrenocortical hormones. The steps involved in the degradation of cholesterol to bile acids are reviewed, along with the various factors which affect cholesterol catabolism. Since degradation of cholesterol depends on the levels of bile salts in the liver, any factor which will increase the turnover of bile acids will also accelerate cholesterol catabolism and may in turn be effective in lowering serum cholesterol.

Vitamin E and Lipid Metabolism. Although the requirement for vitamin E, based on its protection against sterility and development of muscular dystrophy in animals, has not been proved in man, the tocopherols have been accepted as essential for human nutrition. Tocopherols are the principal antioxidants in the body. Although in some types of metabolic reactions tocopherol can be replaced by other antioxidants, there is no question that in some instances the requirement for tocopherol is specific. Antioxidants other than tocopherol may act to spare vitamin E for the metabolic processes for which it is essential. The activity of vitamin E in regulating cholesterol levels in various tissues is probably due in part to its activity as an *in vivo* antioxidant but also to its activity in certain enzymatic processes.

Vitamin E and Lipid Metabolism in Man. Any evaluation of the man's requirement for tocopherol is a function of the amount of polyunsaturates or, rather, the amounts of linoleic acid in the diet. That this is not a simple relationship has been shown by experiments on the modifying effects of other fatty acids on linoleic acid in the production of lesions in chicks and rats. The lipid composition of the brain, the red blood cell, and presumably of all other vital tissues can be altered by dietary means. Altering the levels of unsaturated lipids in the tissues by dietary means can produce pathologic changes. The levels of tocopherol required to protect tissue lipids from peroxidation is a function of the amounts of peroxidizable lipids present. Once the body lipoproteins have accumulated linoleates and have been exposed to peroxidation, it may take abnormally large amounts of tocopherol to inhibit further peroxidation. Feeding lipids high in linoleic acid increases the need for tocopherol. Although most lipids high in linoleic acid are also high in tocopherol, preliminary evidence indicates that tissue tocopherol may be stored less efficiently than tissue linoleic acid, leaving a tocopherol deficit in situations in which linoleic acid consumption has been abnormally high. No one should condemn the ingestion of moderate levels of linoleic acid. However, when large amounts are recommended, an evaluation of the amounts of tocopherol which are ingested should also be made.

Adipose Tissue in Man. A method is described for simple, virtually painless sampling of adipose tissue in man. Such samples were analyzed for fatty acid composition. In this way, a typical or normal pattern of adipose fatty acid composition in healthy, young adults was established. Small groups of older, healthy persons as well as those with coronary artery disease, obesity, and diabetes have shown no marked differences from the average pattern of healthy younger subjects. But, newly born premature and term infants have distinctive alterations. Furthermore, controlled dietary manipulations in adult life can give rise to slow changes in adipose composition.

Interviewing the Patient. Good dietary interviewing can be a diagnostic aid. It requires skill, time, and some background knowledge of what goes into forming food habits, their significance, and the factors which affect them. It should be remembered that poor diet therapy is often worse than none. A good physician should be an excellent person for dietary interviewing since, in many cases, he is extremely skillful at dealing with the variables of human personality that are involved in developing rapport. His prestige and status adds significantly to what he tells the patient. If he assigns the dietary interviewing to someone else, then he must give this person and her function prestige value in the patient's eyes. The interviewer must be aware of the patient's various needs and attitudes, to consider each one as an individual, and to know what such attitudes mean. Too many interviewers tend to chatter to fill the time lapses or worse, jump to conclusions or put words in the patient's mouth. It is a matter of taking time and being willing to listen. The interviewer must have an unjudging attitude and appear interested in but unsurprised by anything the patient may say. There are no uniform or standard procedures of how to carry out a dietary interview. Sufficient time must be provided either through a longer initial interview or through closely timed follow-up interviews. Diet therapy should be built on the present food habits of the individual and a printed diet list should be avoided if possible. The interviewer should consider any questions the patient may have, as small practical

points may make a difference in whether instructions will be followed.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 240, August, 1960

*Pitfalls in the diagnosis and treatment of pernicious anemia. W. A. Challener, III, and D. R. Korst.—p. 226.

Pitfalls of Pernicious Anemia. Sorbitol, a sugar, combined with vitamin B_{12}, has been reported to enhance oral absorption of B_{12}. The authors studied the absorption of radioactive cobalt 60-vitamin B_{12} before and after addition of a potent intrinsic factor preparation and sorbitol. Five patients with proved pernicious anemia and four without were used. Sorbitol had no significant increase in vitamin B_{12} with or without added intrinsic factor. It appears that some persons with pernicious anemia can become refractory to animal intrinsic factor, and this is important due to the large number of oral compounds on the market which contain intrinsic factor from animal sources. Diagnosis of pernicious anemia has become complicated by presence of multivitamin preparations containing folic acid, vitamin B_{12}, and intrinsic factor concentrates. Folic acid can block the development of a typical hematologic picture of pernicious anemia. Therefore, the clinician must rely more on the uses of determinations of histamine-fast achlorhydria and radioactive vitamin B_{12} absorption tests than on the presence of macrocytic or megaloblastic anemia.

AMERICAN JOURNAL OF MEDICINE

Vol. 29, August, 1960

*The relation of emotional state to renal excretion of water and electrolytes in patients with congestive heart failure. R. Barnes and W. W. Schottstaedt.—p. 217.

Emotions and Renal Excretion. Eight male patients with compensated congestive heart failure were studied on a metabolic ward. Constant sodium and water intake was maintained. All urine was collected, the volume noted, and sodium and potassium excretion measured. Wide fluctuations in renal excretion of fluid and electrolytes were observed in all patients. In situations which evoked feelings of discouragement or tension, renal excretion of water and sodium decreased. With excitement, anger, or apprehension, renal excretion rates of sodium increased as compared with rates observed during neutral periods. A diuresis of sodium and water was also associated with periods of reassurance and active relaxation. There was no significant variation in potassium excretion which could be correlated with a specific emotional state. The findings suggest that in the patient with decreased cardiac reserve, prolonged states of tension or depression may be a precipitating factor in episodes of decompensation by mechanism of fluid or sodium retention.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 199, July, 1960

*Amino acids in muscle and kidney of potassium-deficient rats. I. K. Brandt, V. A. Matalka, and J. T. Combs.—p. 39.

Amino Acids and Potassium Deficiency. Rat studies in which potassium-deficient rats were fed sodium chloride solution in lieu of water tended to show a highly significant depletion of potassium and accumulation of sodium in muscle tissue, as compared to that of controls. The concentration of free alpha-amino acids was similar in both groups, as was the concentration of carnosine and anserine. Lysine, histidine, and arginine concentrations were increased. Of interest is the fact that although paper chromatographic techniques could detect changes in lysine and arginine, they were not sensitive enough to discover significant changes in histidine. The concentration of the basic amino acids tended to decrease as the experimental period increased. The changes observed in both the controls and potassium-deficient animals were parallel and thus might be interpreted to represent the effects of increasing starvation.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 50, September, 1960

*Prevalence of protein-calorie malnutrition in Haitian preschool children. D. B. Jelliffe and E. P. P. Jelliffe.—p. 1355.

Malnutrition in Haitian Children. In 1958, a survey was undertaken to measure the public health significance of malnutrition in early childhood in Haiti. The three modes of assessment were: by syndrome, by nutritional indexes, and by weight deviation. Protein-calorie malnutrition was common, affecting about two-thirds of the Haitian one- to three-year-old children in the lower socio-economic group. It was estimated that one out of fourteen children were likely to have been suffering from kwashiorkor at the time of the survey.

THE AMERICAN JOURNAL OF SURGERY

Vol. 100, September, 1960

*Primary carcinoma of the gallbladder. Report of forty-seven cases. B. J. Tabel.—p. 365.

Carcinoma of the Gallbladder. There has been much attention focused on the frequent simultaneous occurrence of carcinoma of the gallbladder and gallstones. The frequency leads one to believe a relationship exists. This report concerned forty-seven cases seen at St. Alexis Hospital, Cleveland, between 1945 and 1957 and correlates data from other Cleveland hospitals during the same period. In a comparative study, carcinoma of the gallbladder was highest in relation to the number of admissions and cholecystectomies performed. The author describes the pathology, symptomatology, physical signs, radiographic findings, pre-operative diagnoses and location of carcinoma, progress, and survival. The patients were mainly of Polish, Bohemian, and Slovenian ancestry who are known for the consumption of high-fat diets. Thirty-eight patients showed a history of intolerance to fatty foods of several years' duration. The disease is rapidly fatal, leading to death in the first postoperative months.

BRITISH MEDICAL JOURNAL

No. 5197, August 13, 1960

*Dietary deficiency of vitamin B_{12}. M. S. Bourne and S. Oleesky—p. 511.

No. 5198, August 20, 1960

*Stilboestrol, phenobarbitone, and diet in chronic duodenal ulcer. S. C. Truelove. —p. 559.

No. 5199, August 27, 1960

*Observations on prevention and diagnosis of anemia in pregnancy. C. Giles and H. Burton.—p. 636.

Dietary Deficiency of Vitamin B_{12}. To prove that a case of macrocytic anemia is due to dietary vitamin B_{12} deficiency, the following criteria are necessary: (a) megaloblastic bone marrow; (b) normal vitamin B_{12} absorption proved by one of the techniques using radioactive cyanocobalamin; (c) normal fat-absorption; (d) the absence of complicating factors, such as the taking of anti-convulsant drugs, pregnancy, or gastric operations; (e) low serum level of vitamin B_{12}, and (f) conversion of the megaloblastic marrow to normoblastic by small oral doses of vitamin B_{12}. It would be helpful but not absolutely necessary to find free acid in the stomach. A case is described which satisfies all but one of these criteria. An average normal diet contains about 5 mcg. vitamin B_{12} per day. Meat and fish are the main sources of dietary vitamin B_{12}. Milk, butter, and cheese contain only the merest trace, and there is a slight amount in egg yolk. This patient did not eat meat or poultry because she disliked them; she had fish once weekly and an occasional egg or helping of cheese. Her diet was greatly lacking in vitamin B_{12}. Her initial symptoms were soreness of mouth and tongue. She responded to administration of B_{12}.

Chronic Duodenal Ulcer. The results are presented of a therapeutic trial of stilbesterol, phenobarbitone, and a gastric diet, in men with chronic duodenal ulcer. The trial was a controlled one and was also "double blind," so far as phenobarbitone and stilbesterol were concerned. Eighty patients were studied. Neither phenobarbitone nor putting the patients on a gastric diet materially influenced either the short-term or the long-term course of the disease. The beneficial effect of stilbesterol was chiefly evident in patients with an ulcer history of less than ten years. However, because of side effects, this treatment should be regarded as experimental.

Anemia in Pregnancy. In order to study the routine administration of folic acid during the last trimester of pregnancy, the hemoglobin levels

at term of 758 women treated with folic acid and iron have been compared with 721 controls treated with iron alone. The mean hemoglobin was 82.2 per cent, as against 79.82 per cent in the controls. The difference of 2.38 per cent is significant statistically. Folic acid appeared to raise the hemoglobin not only of anemic patients but also of normal women, resulting in a higher hemoglobin value at all levels.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 83, August 6, 1960

*A low sodium, high water, high potassium regimen in the successful management of some cardiovascular diseases. Preliminary clinical report. D. Sodi-Pallares, B. L. Fishleder, F. Cisneros, M. Vizcaino, A. Bisteni, G. A. Medrano, B. J. Polansky, A. de Micheli.—p. 243.

*Vitamin A plus E plus B_6 in treatment of arteriosclerosis. Editorials and Comments.—p. 268.

Vol. 83, August 13, 1960

*Etiological investigation of arteriosclerotic heart disease. J. F. Cantelon.—p. 326.

Vol. 83, September 3, 1960

*Hypertension and atherosclerosis in Asia. Editorials and Comments.—p. 552.

Diet Therapy in Cardiovascular Disease. The results of treatment of patients with cardiac insufficiency, arterial hypertension, and angina pectoris with a low-sodium, high-water, high-potassium regimen are presented. It appears that rigid sodium restriction may not be enough in the majority of cases, but that administration of potassium as well as large amounts of water may also be necessary. Water is not merely an inert portion of the diet of the patient but is a part of the therapeutic armamentarium and should be regarded as a drug to be taken in specified doses.

Vitamins A, E, and B_6 in Arteriosclerosis. In a preliminary examination of 325 patients given three to six dragees each containing 3000 units of vitamin A and 70 mg. vitamin E daily for one and a half years, 51 per cent claimed marked improvement in their condition. It was then decided to proceed with a double-blind test to avoid any effect of suggestion. Similar dragees were prepared, some contained a combination of vitamin A plus E; some vitamin A plus E plus B_6; and others, a placebo of lactic sugar and other inactive substances. A high percentage of patients receiving placebos claimed improvement. The difference between the percentages of improvement by the administration of vitamin A plus E or vitamin A plus E plus B_6 and that from placebos was not statistically significant. In summary, then, administration of vitamin A plus E, plus B_6 to patients with arteriosclerosis failed to reveal any valuable effect.

Etiology of Arteriosclerotic Heart Disease. A family history of arteriosclerotic heart disease, the association of diabetes mellitus, the clinical finding of overweight and hypertension, the history of a high-animal fat diet, and the biochemical finding of hypercholesteremia are all common in patients with arteriosclerotic heart disease. However, many—some quite young—have this disease without any of the above being present. Hyperuricemia was a rare finding in this group of patients.

Hypertension and Atherosclerosis in Asia. Several widely held misconceptions concerning the rarity of hypertension and atherosclerosis among eastern Asian races, particularly those of India and China, are debunked by an American physician with extensive clinical experience in teaching and hospital practice in both of these countries. Among 48,429 inpatients seen at the Christian Medical College and at the hospital at Ludhiana, Punjab, India, between 1950 and 1958, hypertension of undetermined cause was encountered frequently in both sexes, often accompanied by obesity. It was also reported as prevalent in China, although the average blood pressure range was believed to be lower than in the U. S. Most of the hypertensives were in the fifth or sixth decades of life, and many were of the well-to-do classes. A majority also showed evidence of arteriosclerosis. It is pointed out that for centuries the diet of the middle classes in India has involved a high intake of saturated fatty acids in the form of rich buffalo milk and fresh and preserved butter.

CHILDREN

Vol. 7, September-October, 1960

*A home economist in service to families with mental retardation. M. H. Parsons.—p. 184.

Service to Families with Mental Retardation. The Pine School Project in Iowa is an attempt to determine the relation of social, economic, and educational deprivation to familial mental retardation—retardation occurring throughout a family without any apparent organic cause—a phenomenon peculiar to families of low socio-economic status. One member of the research-oriented, multidisciplinary team is a home economist. She was charged with finding ways to help the families improve their home life and of studying the effects of the methods devised. Working in cooperation with the social worker and public health nurse, weekly home visits were instituted. Case histories of two of the nine families are presented, and group meetings of the mothers involved are described. The improvements in the various families and in the younger children as they approached school age raised the question: Could there be a relationship between the stimulation of the parents and older brothers and sisters, and the fact that the younger children had higher IQ scores than their older siblings?

CIRCULATION

Vol. 22, August 1960

*Occupational physical activity and the degree of coronary atherosclerosis in "normal" men. A postmortem study. D. M. Spain and V. A. Bradess.—p. 239.

*Hourly variation in total serum cholesterol. J. E. Peterson, A. A. Wilcox, M. I. Haley, and R. A. Keith.—p. 247.

*Atherosclerosis and related factors in immigrants to Israel. M. Toor, A. Katchalsky, J. Agmon, and D. Allalouf.—p. 265.

Vol. 22, September, 1960

*Diet and coronary artery disease. R. E. Olson.—p. 453.

*Hormones, cholesterol, and coronary atherosclerosis. G. S. Kurland and A. S. Freedberg.—p. 464.

Activity and Coronary Atherosclerosis. There is considerable speculation concerning the relationship of physical activity to the development of coronary atherosclerosis and ischemic heart disease. A significant number of individuals were evaluated to determine the presence or absence of such associations. In autopsies on normal white men between the ages of thirty and sixty, who died suddenly from accident, homicide, or suicide, there were no significant differences in the degree of coronary atherosclerosis in those engaged in sedentary occupations and those engaged in physically active occupations.

Variation in Serum Cholesterol. Evidence is presented to indicate that the level of serum cholesterol in certain individuals may vary widely within a matter of hours. The data suggest also that a rapid fluctuation of the serum cholesterol level may be induced in some persons by modifying certain aspects of their environment. Varying lability of the level of serum cholesterol and the differing response of individuals to certain environmental factors require that careful attention be given to the sampling methods used in research.

Atherosclerosis in Israel. Clinical experience in Israel, supported by statistical surveys, showed a low incidence of atherosclerosis among immigrants from eastern countries as compared with immigrants from western countries. In particular, the incidence of atherosclerosis among immigrants from Yemen was strikingly low. The lowest serum cholesterol and beta cholesterol values were found among the "recent" Yemenites (after five years in Israel), the poorest economically, and with an imbalanced caloric intake of the lowest fat content. Higher cholesterol and beta cholesterol values were found among "early" (after twenty years in Israel) Yemenites, Iraqi, and European manual workers with no significant differences among them, whereas in Europeans of higher levels, these values were even higher. A statistical survey of the entire population between 1953 to 1957 showed that the mortality rate from atherosclerosis was extremely low for "recent" Yemenites, considerably higher for "early" Yemenites, and still higher for European immigrants. These results suggest the influence of socio-economic conditions, diet, and total caloric balance on serum cholesterol values and atherosclerosis morbidity

and mortality. They support the assumption that atherosclerosis is a disease of lipid metabolism influenced by phenotypic factors and therefore can be prevented.

Diet and Coronary Heart Disease. Atherosclerosis is undoubtedly a disease of multiple causation, which appears to have so many determinants that they tend to defy orderly classification under titles of agent, host, and environment. It is certain that atheroma arises within the host as the result of a complex interaction between host and environment. However, the agent of atherosclerosis is an endogenous and dependent variable. In this paper, Dr. Olson presents evidence supporting a relationship between diet and coronary artery disease which rests on three pillars. These are: (a) epidemiologic studies of populations differing widely in disease prevalence and correspondingly in nutritional, socio-economic, cultural, and other environmental status; (b) clinical investigations of small groups of subjects fed carefully controlled diets under the conditions of the metabolic ward; and (c) laboratory investigations of the effect of various purified diets on serum cholesterol, beta lipoproteins, and atheromatosis in a variety of experimental animals. From all the evidence, it appears that one must accept the fact that diet plays a role in human atherosclerosis. It remains to be shown that, when beta lipoprotein concentrations of a large number of persons are lowered through appropriate diet therapy, this change will modify the morbidity and mortality from clinical coronary disease. Nevertheless, the evidence is convincing enough at this time, in Dr. Olson's opinion, to advise patients with coronary proneness as evidenced by a positive family history and elevated cholesterol or a disease such as diabetes or hypertension, to follow appropriate diet therapy in the hope that lower serum cholesterol values will improve the prognosis.

Hormones, Cholesterol, and Atherosclerosis. Various hormones have been shown to play an important role in lipid metabolism. This paper reviews clinical and experimental observations implicating the thyroid, adrenal, gonadal, and pituitary glands in atherogenesis. The evidence is strongest that estrogens play a role in human atherosclerosis. The influence of hypothyroidism requires further study and clarification. Hormones and lipids are obviously not the only factors important in atherogenesis.

DIABETES

Vol. 9, September-October, 1960

*The effect of prior carbohydrate intake on the oral glucose tolerance test. H. L. C. Wilkerson, F. K. Butler, and J. O'S. Francis.—p. 386.

Prior Carbohydrate Intake and the Glucose Tolerance Test. Although starvation can produce decreased tolerance to glucose, sometimes called "hunger" diabetes, clinicians differ regarding the extent and necessity of dietary preparation before an oral glucose tolerance test. In this study, it was shown that the glucose tolerance of healthy individuals, after being impaired by a drastically restricted carbohydrate intake of 20 gm. could be restored to normalcy by as little as 150 gm. carbohydrate. It is believed that adequately nourished individuals need no special high carbohydrate preparation (300 gm.) prior to an oral glucose tolerance test. A minimum of 150 gm. carbohydrate daily for four days is considered sufficient to restore normal carbohydrate tolerance in persons who have restricted their carbohydrate intake.

ENDOCRINOLOGY

Vol. 67, September, 1960

*Relationship of the adrenal medulla to the hyperglycemic effect of glucagon. E. J. Sarcione, J. E. Sokal, and K. E. Gerszi.—p. 337.

Adrenal Medulla and Glucagon. The purpose of this study was to determine the relationship of adrenal medulary activity to the hyperglycemic effect of glucagon. Bilateral adreno-demedulation was carried out on male rats. Eight days later, they were used for experimentation. The rats were fed glucose via a stomach tube and allowed time for glucagon deposition. Crystalline glucagon was then administered. Blood glucose values were determined both before and at intervals after its administration. In the normal animals, there was a prompt rise in blood glucose. In adrenodemedullated animals, however, little or no rise occurred. In each case, liver specimens proved an adequate liver glycogen storage. The changes in blood glucose produced by epinephrine plus glucagon were significantly different from the values after injection of glucagon alone at all intervals from 10 to 60 min. From this experiment, it appears reasonable to conclude that epinephrine is the hormone required for glucagon hyperglycemia.

FOOD TECHNOLOGY

Vol. 14, September, 1960

*Functional properties and flavor of eggs laid by hens on diets containing different fats. R. Jordan, G. E. Vail, J. C. Rogler, and W. J. Stadelman.—p. 418.

*Studies on the application of infrared in food processing. E. A. Asselbergs, W. P. Mohr, and J. G. Kemp.—p. 449.

*Comparative heating efficiencies of a microwave and a conventional electric oven. G. A. Pollak and L. C. Foin.—p. 454.

*Comparison of rate of cooking and doneness of fresh-unfrozen and frozen defrosted turkey hens. G. E. Goertz, A. S. Hooper, and D. L. Harrison.—p. 458.

Flavor of Eggs Related to Feed. Eggs from three groups of Leghorn hens on diets containing different kinds of fat were compared. The diets were: a stock ration, the stock ration supplemented with 10 per cent corn oil, and the same stock ration supplemented with 10 per cent beef tallow. After three weeks, the percentage of drainage from foams of eggs of the beef-tallow group was significantly greater than from eggs of the corn-oil group. After six weeks, this was true also of the control group. Whole-egg sponge cakes made from eggs of the beef-tallow group were significantly smaller than cake made from eggs from the other two groups of birds. Flavor tests on freshly laid eggs showed distinguishable differences among the three groups. However, after three months' refrigerated storage, no significant difference in taste existed between eggs of the corn-oil and stock ration groups, but a highly significant difference in flavor between the beef-tallow and stock-ration groups was found. Products made from eggs of the corn-oil group were noticeably lighter in color than similar products from the other two groups. Iodine values of the ether extracts of egg yolks from the three groups differed significantly. Thus a relationship between the nature of egg yolk fat and functional properties of the egg was suggested.

Infrared in Food Process. Three types of high energy, infrared radiators—quartz lamps, quartz tubes, and calrods—were evaluated for their effectiveness in blanching apples, celery, and peas prior to freezing and in preparing French fries. The general quality of infrared-blanched samples was better than that of samples blanched by conventional steam or boiling water methods. Accompanying weight losses of up to 35 per cent by weight would result in reduced freezing, storing, and handling costs of products intended for later remanufacture. Infrared was substituted for the parboiling treatment of beef as preliminary heat treatment in preparing beef stew. The color, texture, and flavor of the infrared-braised, canned meat was considered superior to that of parboiled meat.

Microwave vs. Conventional Electric Ovens. The heating efficiency of microwave (electronic) and conventional cooking equipment in the heating of water and the roasting of beef was studied. In heating water, the over-all electrical efficiency was 34 per cent for both types of equipment, but the efficiency of a conventional hot plate was 63 per cent, virtually double that of the ovens. In roasting 8-lb. ribs of beef, the over-all electrical efficiencies were 36.7 per cent for the conventional and 33.4 per cent for the microwave oven. However, the product prepared in the conventional oven yielded 13 per cent more edible meat, using 24 per cent less electrical energy. A better way to express the energy-yield relation is the energy required to prepare a unit weight of edible product. This was 74 BTU per ounce of yield for the conventional oven, as compared with 119 BTU per ounce of yield for the microwave oven. The difference in energy was attributed primarily to energy required to evaporate a greater amount of water in microwave cooking.

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Fresh-Unfrozen and Frozen-Defrosted Turkeys. Fresh-unfrozen and fresh-frozen turkeys were roasted to 90°C. in the breast and to 95°C. in the thigh. The latter generally were more done than those roasted to 90°C. in the breast. Total cooking time was longer for fresh-frozen turkeys roasted to 95°C. in the thigh than for similar birds roasted to 90°C. in the breast. Similar results for cooking time were noted for fresh-unfrozen turkeys. Also, fresh-unfrozen and fresh-frozen turkeys and turkeys stored one and three months at 0°F. were roasted to 95°C. in the thigh. Total cooking time was shorter and volatile cooking losses lower for fresh-unfrozen turkeys. Dripping losses were lower and light meat flavor scores and dark meat tenderness scores were higher for the stored turkeys than for either the fresh-unfrozen or fresh-frozen birds. Doneness scores for light and dark meat were higher for turkeys stored one month than for those of the other turkeys. In addition, frozen, defrosted turkeys were roasted breast-up and breast-down. The thigh temperature of birds roasted breast-up increased more rapidly and cooking time was shorter than for those roasted breast-down. Doneness and other palatability scores were similar for all birds in this group.

GASTROENTEROLOGY

Vol. 38, April, 1960

*Some biochemical investigations into the cause of wheat sensitivity in celiac disease. H. A. Weijers and J. H. van de Kamer.—p. 587.

*Clinical experience with the gluten-free diet in idiopathic steatorrhea. J. M. French, C. F. Hawkins, and W. T. Cooke.—p. 592.

*Relation of small bowel resection to nutrition in man. M. H. Kalser, J. L. A. Roth, H. Tumen, and T. A. Johnson.—p. 605.

Vol. 39, September, 1960

*The effect of changes in dietary protein on experimental viral hepatitis in mice. B. Ruebner and J. L. Bramhall.—p. 335.

Wheat Sensitivity in Celiac Disease. Since Dicke in 1950 detected the sensitivity of patients with celiac disease to wheat, the clinical behavior of these patients and also certain sufferers from endemic sprue is thought to depend on wheat. The influence of the gluten-free diet is unmistakable. The presence of gluten from wheat, rye, barley, or oats not only causes the well known clinical signs and symptoms, but also exerts a marked influence on the patient's psychic behavior. Steatorrhea may not become manifest until gluten has been present in the diet for three to six weeks. In an attempt to determine the cause of wheat sensitivity, the components of wheat gluten were tested in celiac patients. Some of the biochemical investigations are presented. It appeared that the harmful factor was mainly the gliadin fraction. The question then arose as to why the gliadin exerted such a noxious influence. In view of the abnormally high glutamine content of gliadin, this substance was suspected. It was found that the rise of blood glutamine after oral loading with gliadin was not caused by free glutamine, but probably by peptide-bound glutamine. Some suggestions for the presence of these peptides in the blood are discussed.

Gluten-Free Diet in Steatorrhea. Clinical experience of forty-four patients with adult idiopathic steatorrhea treated with a gluten-free diet followed since 1951 at Queen Elizabeth Hospital, London, revealed that most responded to diet. Failures were attributed to incomplete removal of gluten from the diet and to inadequate duration of gluten-free management. Gluten intake can induce a relapse. The behavior of adult idiopathic steatorrhea is the same as celiac disease, and the condition known as adult idiopathic steatorrhea or nontropical sprue, in the opinion of these authors, should more properly be called "adult celiac disease."

Small Bowel Resection and Nutrition. Three groups of patients underwent intestinal resection or by-pass. If a segment of terminal ileum and the ileocecal valve are left intact, nutritional deficiencies will be minimal. Megaloblastic anemia developed in five of the fourteen patients who underwent extensive resection with removal of the ileocecal valve. The ileum was more functional than the jejunum in relation to fat and vitamin B_{12} absorption. Deficiency in nutritional state from extensive resection was treated with a high caloric diet. The patients usually adjusted their diet to their own needs and tastes. There were no attempts to limit fat. Megaloblastic anemia was treated with oral and parental vitamin B_{12} and folic acid.

Dietary Protein and Hepatitis. Studies were done to determine the effect of changes in dietary protein in experimental viral hepatitis in mice. A strain of mouse-hepatitis virus obtained from infected animals was injected into mice. The mice were put on diets that varied in carbohydrate and fat but were similar in protein content. Since there was no difference in mortality between the two groups, it was concluded that a marked change in dietary fat and carbohydrate did not affect mortality from experimental hepatitis. Mice were then put on diets varying in protein content. The number of mice dying each day was statistically significant, since there was a marked difference in the number on the high-protein diet dying as compared with those on low-protein diet. It was concluded that a decrease in dietary protein increases the death rate of mice from viral hepatitis.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 8, September-October, 1960

*Preservative effect of sorbic acid on creamed cottage cheese. G. A. Perry and R. L. Lawrence.—p. 374.

*The fatty acids and glycerides of cow's milk fat. E. L. Jack.—p. 377.

*Further studies on the nutritional improvement in rice. M. C. Kik.—p. 380.

*Factors affecting the ascorbic acid and carotene content of broccoli. M. E. Martin, J. P. Sweeney, G. L. Gilpin, and V. J. Chapman.—p. 387.

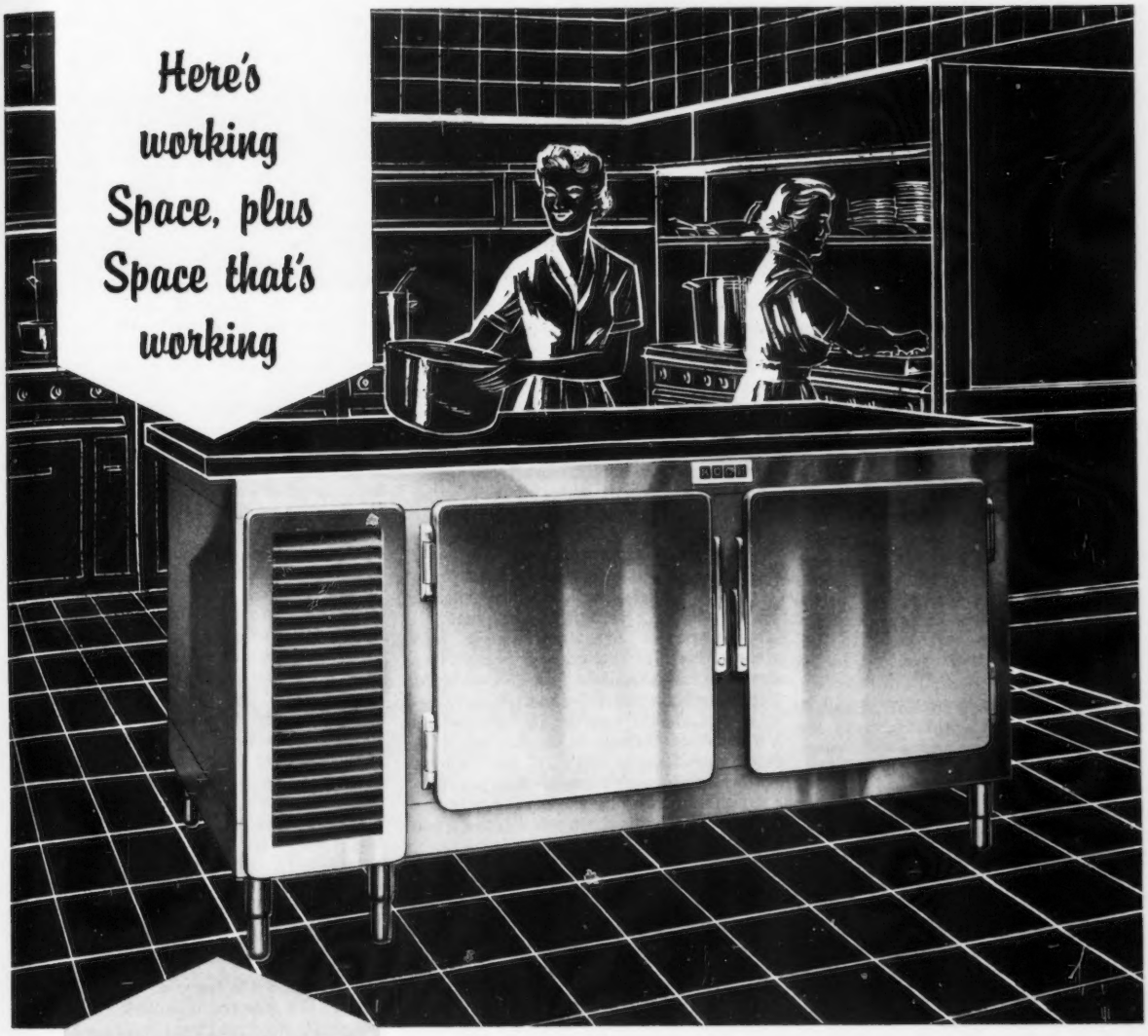
*Effects of feeding low levels of heptachlor epoxide to dairy cows on residues and off-flavors in milk. C. A. Bache, G. G. Gyrisco, S. N. Fertig, E. W. Huddleston, D. J. Lisk, F. H. Fox, G. W. Trimberger, and R. F. Holland.—p. 408.

*The effects of feeding high levels of Sevin on residue, flavor, and odor of the milk of dairy cattle. G. G. Gyrisco, D. J. Lisk, S. N. Fertig, E. W. Huddleston, F. H. Fox, R. F. Holland, and G. W. Trimberger.—p. 409.

Preservative Effect of Sorbic Acid on Cottage Cheese. Commercially made creamed cottage cheese is a microbiologically unstable product because bacteria, yeast, and mold contaminants cause flavor changes. This deterioration is retarded, but not halted by low temperature storage or by rigid sanitation. The incorporation of sorbic acid into cottage cheese arrests the growth of most contaminants, but not the microorganisms associated with flavor formation in dairy products. The efficacy of sorbic acid depended on its concentration, the storage temperature, and the intensity of the initial contamination. In creamed cottage cheese of *p*H 4.9, 0.05 and 0.07 per cent sorbic acid increased microbiologic and flavor stability.

Milk Fat Composition. Among the major food fats, the milk fats are of interest because of their intended use directly as food for the newly born animal, in contrast to the depot fats which are storage reservoirs. Milk fats contain a variety of individual fatty acids ranging in carbon chain length from 4 to 26 and of various degrees of unsaturation from monoenes to penta-enes. The unsaturated acids exist in many positional and geometrical isomeric forms. The composition of milk fats is influenced by diet and by the level of nutrition of the animal. The general distribution patterns of fats has been studied, but no sound conclusions can be drawn about milk fats. Investigative tools are now becoming available whereby both the general distribution pattern and the specific distribution and location in glycerides of individual fatty acids can be determined.

Rice Protein Supplementation. The proteins of whole and milled rice can be effectively supplemented by those of whole milk solids, lactalbumin, and defatted whole egg. Data are presented on the content of amino acids (essential and nonessential), vitamins, and other constituents of milk solids and defatted whole egg. Lactalbumin was tested for total amino acid content. The results show the extent to which rice rations can benefit from the addition of small amounts of milk solids, lactalbumin, and whole egg. This is of importance in areas of the world where much rice is consumed



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and where these high protein foods are economically available.

Broccoli Nutrients. The high ascorbic acid and carotene content of broccoli and the instability of these nutrients give rise to a study of factors affecting them. Investigations were made of the carotene content and of the oxidation and retention of ascorbic acid in broccoli as influenced by market forms, length of storage, and cooking method. When cooked to optimal doneness, frozen and fresh broccoli retained about the same percentage of their original ascorbic acid, from 65 to 79 per cent, depending on the cooking method. Frozen broccoli stored at 0°F. for thirty-six weeks showed only slight oxidation of ascorbic acid. No decrease in carotene was found in frozen broccoli stored for sixty-one weeks at 0°F.

Heptachlor Epoxide Residues in Milk. The effect of feeding low levels of heptachlor epoxide to dairy cows was investigated. Analysis of the butter fat indicated residues. The feeding rates used in this study simulated the residue of heptachlor epoxide on alfalfa after practical application of heptachlor. No off-flavors or odors were present in the milk.

Residues of Sevin in Milk. Sevin is a new insecticide with relatively low mammalian toxicity and a wide range of effectiveness on many insects. The effects of feeding high levels of Sevin on residue, flavor, and odor of the milk of dairy cattle were observed. The concentration of Sevin in the milk, if present, was below the sensitivity of the analytical method. No off-flavors or odors that could be attributed to Sevin were found.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 174, September 3, 1960

*Diet in coronary atherosclerosis. Correspondence.—p. 92.

Vol. 174, September 10, 1960

*Nutrition and disease of the eyes. Foreign Letters–Africa.—p. 193.

*Obesity and caloric bookkeeping. Correspondence.—p. 199.

*Absorption of strontium. Questions and Answers.—p. 206.

*Milk for athletes. Questions and Answers.—p. 208.

Vol. 174, September 17, 1960

*Diabetes in Yemenites and Kurds. Foreign Letters–Israel.—p. 324.

*Salt intake. Questions and Answers.—p. 331.

Vol. 174, September 24, 1960

*Niacin and the cholesterol level. Questions and Answers.—p. 444.

Diet in Coronary Atherosclerosis. A physician is questioning a statement in which the investigator appeared to have demonstrated a statistically significant superiority of the low-fat, low-cholesterol diet in coronary atherosclerosis. This investigator considered the statistical evaluation of one hundred patients in his study impractical because of the smallness of his sample. The correspondent explains a relatively simple method for statistical analysis which can yield a satisfactory answer despite a limited number of cases.

Nutrition and Eye Disease. Nutritional status and eye examinations of school children in two areas of Tanganyika are compared. One area had had a severe famine, but the other had suffered no food shortage. In both areas, most children showed early "water-cleft" opacities in the periphery of the lens, but there was a significantly higher incidence in the children who had lived through the famine. Refractive errors were also much more common in the famine area. Heights and weights were lower and general appearance poorer in these children. Although it was impossible to say that malnutrition was responsible for eye diseases, it is thought to play an important role.

Obesity and Caloric Bookkeeping. In this letter, a physician is disagreeing with a recent editorial concerning weight loss and causes of obesity. He cites thirty years' experience in treating obese patients successfully and does not equate the complicated problem of obesity with one of caloric bookkeeping. He states that not all obese people are hyperphagic and some maintain excessive weight by economies established in the field of intermediary metabolism. Water retention should not be disregarded as a cause of obesity, as it may relate to the interference with fat metabolism in water-logged tissues. Another factor disregarded by the orthodox is the difficulty of mobilizing fat from some of its depots. Endocrine influences, such as those of the thyroid, pituitary growth hormone, ACTH, or certain steroids, mobilize fat and make it available for metabolic utilization. The view that obesity is merely a question of overeating, emotionally conditioned and medicinally controlled only with negligible success, is considered a one-sided attitude by this physician.

Strontium Absorption. There is some question whether dietary calcium serves as a chemical diluent to reduce the absorption and utilization of strontium-90. Until experiments now under way are evaluated, this might be considered a useful procedure. At present, the levels of strontium-90 are so low that there would be no advantage in increasing dietary calcium, but there is no objection to the use of moderate amounts of the calcium salts as a dietary supplement. There is some evidence that absorption of calcium gluconate is best, although in patients with normal gastric acidity almost any non-toxic calcium salt could be used.

Milk for Athletes. There does not appear to be any basis for deploring a high intake of fluid milk as "bad for the wind" of an athlete. However, unless the excess caloric intake is utilized in daily activities, a marked increase in body weight will result from the added milk. The current interest on the effect of animal fats on one's health has led some investigators to suggest that all adults eliminate whole milk. However, the Council on Foods and Nutrition of the American Medical Association does not agree that current knowledge in the area of fats and cardiovascular disease indicates such marked modification. Presumably, a high-calcium intake could cause hypercalciuria which may lead to the formation of urinary calculi.

Diabetes in Yemenites and Kurds. Although diabetes is a hereditary disease, its appearance depends on a complex of external and internal precipitating factors. The effect of the extreme change in environment and living habits undergone by two Jewish communities, the Yemenites and the Kurds, after their immigration to Israel was investigated. The prevalence of diabetes in the new immigrants (those who came in the last ten years) was extremely low, while it rose significantly in the older settlers (those there over twenty-five years). External environmental factors were thus of extreme importance.

Salt Intake. Salt-excreting drugs, such as chlorothiazide, may exert hypotensive effects even when dietary salt intake is not restricted, although salt restriction at times may potentiate their action. The dosage of saluretic agents needed to achieve a hypotensive effect is variable, the usual dose being 500 mg. two or three times a day. If more than 1 gm. per day is required, close observation for side-effects, especially hypokalemia, is essential. If adequate control of blood pressure is achieved with saluretic agents alone, or in combination with other anti-hypertensive agents, nothing is to be gained by restricted salt intake, unless congestive heart failure is present.

Niacin and Cholesterol. The rationale of the use of nicotinic acid to reduce serum cholesterol levels is that, if there is a relationship—direct or indirect—between lipid levels and lipid deposits in the arteries, lowering serum cholesterol levels should be associated with a reduction in the probability of accumulation of lipid deposits. It has not been shown, however, that there is such a reduction in lipoprotein deposits when nicotinic acid is used therapeutically. Those who are interested in artifically lowering cholesterol blood levels do so with the hope that the patient can thereby be removed from the "statistically high risk" population.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 34, June 16, 1960

*Protein metabolism in marasmic children. R. P. Misra.—p. 481.

Protein Metabolism in Marasmic Children. Partitioning of the urinary nitrogen and qualitative and quantitative studies of free amino acids in blood and urine were carried out in both normal and marasmic infants and children in the age group from birth to twenty-four months. Bio-

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chemical data revealed considerable loss of total nitrogen, amino nitrogen, and ammonia nitrogen in the urines of the subjects. Absence of raised levels of amino acids in the blood imply derangement in the function of the kidneys.

THE JOURNAL OF NUTRITION

Vol. 72, September, 1960

*Studies of the effect of lysine on the absorption of radiocalcium and radiostrontium by the rat. A. M. Raven, F. W. Lengemann, and R. H. Wasserman.—p. 29.

*Cardiac lesions and related findings in young vitamin B_6-deficient rats. J. Seronde, Jr.—p. 53.

*The effect of certain factors on nitrogen retention and lysine requirements of adult human subjects. I. Total caloric intake. H. E. Clark, S. P. Yang, L. L. Reitz, and E. T. Mertz.—p. 87.

*Effect of dietary carbohydrates and Aureomycin on serum and liver cholesterol in rats. K. Guggenheim, J. Ilan, and E. Peretz.—p. 93.

Lysine and Absorption of Calcium and Strontium. In view of the favorable effect of L-lysine on calcium and strontium absorption, this study is concerned with the mechanism of action of lysine and examines the longer-term effects of lysine by supplementing both normal and calcium-deficient diets with various additions of L-lysine. The action of lysine was most pronounced in the ileum. The supplementation of a basal diet with three different levels of lysine did not significantly increase the net retentions of stable calcium during a balance period. Similarly, an addition of lysine to a low-calcium diet did not influence the absorption of strontium. It therefore seems that, while lysine can markedly increase the absorption of calcium and strontium when administered alone to fasted rats, it is unable to do so in the presence of normal dietary constituents.

Heart Lesions in B_6-Deficient Rats. Rats receiving a pyridoxine-deficient diet at weaning survived about two months, then died, showing cardiac and renal hypertrophy, myocardial lesions, cardiac dilation, atrial thrombi, and hydrothorax in a significant number of cases. The interrelationships of these lesions are discussed. It is suggested that pyridoxine may play a role in certain problems of human heart disease.

Calories and Lysine Requirement. The effect on nitrogen retention of varying the caloric intake when the diet provided quantities of lysine that equalled or exceeded minimum requirements was measured. Amino acids were present in purified and peptide-bound form in cereals. Nitrogen balances were not altered by increasing the energy value of the diet above a critical level which differed for individuals. Reduction of calories below this point caused a decrease in nitrogen retention, so that a subject who previously retained significant amounts of nitrogen might just maintain equilibrium or even be in negative balance.

Carbohydrates and Cholesterol Metabolism. The effects of certain dietary carbohydrates and of Aureomycin in serum and liver cholesterol and on liver fat were studied in rats. The diets differed as to their content of cholesterol and cholic acid. Generally, starch in the diet led to higher levels of liver fat and cholesterol than sucrose or dextrose; sucrose lowered liver cholesterol. The effect of carbohydrates on serum cholesterol, liver fat, and nitrogen depended on the presence of steroids in the diet. Aureomycin or replacement of 10 per cent of starch by sorbitol increased liver cholesterol in most dietary combinations. It does not seem possible at present to postulate a mechanism by which carbohydrates or Aureomycin act on cholesterol metabolism.

JOURNAL OF PEDIATRICS

Vol. 57, July, 1960

*Diseases of nutritional deficiency of children in South India. C. Gopalan.—p. 89.

Vol. 57, August, 1960

*A study of the I^{131} uptake in children with special reference to the iodide repletion test. M. Diwany, M. Gabr, F. Sallam, and M. Saadani.—p. 180.

Nutritional Deficiency in South India. This paper on nutritional disorders of children in South India touches on two major problems: vitamin A deficiency and protein malnutrition. Other nutritional deficiency diseases, such as scurvy, rickets, pellagra, and phrynoderma, are also encountered in the region. Studies on phrynoderma carried out in Coonoor have indicated the role of essential fatty acid deficiency in the pathogenesis of this disease. From the viewpoint of prevalence of frank nutritional deficiency diseases, the children between one and five years of age must be considered the most valuable segment in South India. In any rational program of nutritional betterment of the population, this group must receive special attention.

Iodine Uptake in Children. Uptake of labeled iodine was measured in 24-hr. periods in 119 euthyroid Egyptian children of different ages. Forty-seven (39.5 per cent) showed abnormally high uptakes. A modified iodide repletion test was done on twenty-five of these children. The results indicated that a state of iodine deficiency is prevalent in apparently healthy Egyptian euthyroid children. Iodine deficiency was not related to sex, weight, surface area, or social status, but it seems to be more pronounced in older children. High uptakes of labeled iodine must be interpreted with caution, and an iodide repletion test must be done before definite conclusions are made. Introduction of iodine in the diet through iodized table salt would seem to be needed in Egypt.

THE JOURNAL OF SCHOOL HEALTH

Vol. 30, September, 1960

*A need for nutrition knowledge. D. Throssell and J. Morrison.—p. 273.

Nutrition Knowledge. A five-year food habit study, made in four northwestern Ohio counties, indicates that our children are nutritionally hungry. Children rejected certain foods simply because they had never eaten them and didn't know what they were. Also, the children were ignorant of basic nutrition principles. Generally, in the lower grades, boys neglected nutrition more than girls. In the ninth and tenth grades, the boys' nutrition level picked up in some areas. Boys ate more protein foods, and girls out-distanced boys on vitamin content. In the higher grades, milk consumption dropped for both sexes. Reasons for these differences are put forth, the use of the 24-hr. recall as an educational device is described, and ways of emphasizing and teaching nutrition in the schools are presented. In addition, there are four ways in which educators can help: (a) teach basic nutrition facts to teachers in college preparatory courses; (b) help the athletic coach to see and make use of his opportunities for nutrition teaching; (c) combat false and misleading advertising relating to food and nutrition; and (d) increase efforts to include the community in nutrition education programs.

THE LICENTIATE (India)

Vol. 10, June, 1960

*Physiological absorption of nutrients (a basic consideration). B. Y. Nadkarni.—p. 91.

Vol. 10, August, 1960

*Protein requirement of Indians. S. P. Roychowdhury.—p. 147.

Absorption of Nutrients. Nine common food grains of India were evaluated for their thiamine, riboflavin, and niacin content as available for absorption. There was a marked difference between the total content of nutrients and the amount available for absorption. A loss of the vitamins also occurred during cooking. These factors must be considered when assessing the nutritive value of these grains and their worth in the Indian diet.

Protein Requirement of Indians. This paper deals with the problem of human protein requirement in India. Since all the differences between the figures of daily protein requirement for balance were insignificant, the protein requirement for adults was estimated as the average of the readings, i.e., 18.5 gm. for a 55-kg. man of moderate muscular work. Minimum daily protein requirement of persons from the age of nineteen to thirty-nine years was the same in spite of their living in varying climates of India and in different states. There was a positive but insignificant correlation between age and body weight with the protein requirement.

THE MEDICAL CLINICS OF NORTH AMERICA

Vol. 44, No. 5, September, 1960

*Serotonin metabolism and the carcinoid syndrome: a review. R. H. Resnick and S. J. Gray.—p. 1323.

*Pathological abnormalities of magnesium me-

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tabolism. W. E. C. Wacker and B. L. Valiee.—p. 1357.

*Studies on the metabolic response to prolonged fasting. F. C. Wood, Jr., L. Domenge, P. R. Bally, A. E. Renold, and G. W. Thorn.—p. 1371.

Serotonin Metabolism and the Carcinoid Syndrome. Although the role of serotonin in human physiology and disease has not been definitely established, its wide distribution in nature, together with its profound and dramatic effects in malignant carcinoidosis, sprue, hepatic coma, anaphylaxis, phenylketonuria, and mental disease indicates that it may play a role in the function of many different organ systems. Tryptophan is usually metabolized by hydroxylation to 5-hydroxytryptophan and decarboxylation in the argentaffin cells of the intestinal tract to 5-hydroxytryptamine or serotonin. It is then further de-aminated to 5-hydroxyindoleacetic acid and excreted in the urine. Normal persons metabolize 1 per cent of dietary tryptophan by this means, but patients with carcinoidosis can convert 60 per cent of dietary tryptophan to 5-HIAA. This decreases the tryptophan available for the syntheses of protein and nicotinic acid; thus the clinical features of pellagra may develop in some patients with malignant carcinoidosis. These carcinoid tumors, found in the intestinal tract, were shown to contain large amounts of serotonin. Symptoms of the syndrome are acute, reddish, cutaneous flush; watery diarrhea; pulmonary stenosis; asthmatic attacks; and an enlarged liver. The latter usually signifies metastatic involvement. Laboratory aspects, prognosis, and therapy are discussed and outlined.

Magnesium Metabolism. Despite lack of conclusive evidence for a physiologic role for magnesium, it is inferred that the iron plays a significant role in intracellular catalysis. Investigation of this element's role in medicine is still in its infancy. It is an essential nutrient for animals and plants, therefore suggesting that inadequate intake may result in deficiency disease in man. Experiments to induce a dietary deficiency in healthy persons have proved unsuccessful. The authors have recently described a new specific clinical entity, human magnesium tetany. Conclusive proof that the syndrome is due to an alteration of magnesium metabolism is afforded by the correlation of symptoms with a chemical change in serum and by the concomitant restoration of both to the normal state by treatment with magnesium. Other diseases accompanied by a decrease in serum magnesium are: delirium tremens, renal failure, convulsive disorders, and arrhythmias.

Metabolic Response to Prolonged Fasting. These studies were initiated due to new developments in the understanding of lipid release and synthesis. It has been found that synthesis and release are directly controlled by factors like substrate availability and hormonal activity. The free fatty acid fraction of plasma lipids has become clinically measurable. It is hoped the studies will show response to prolonged fasting in obesity and in diabetes. Four subjects volunteered for the 85-hr. fast. Blood glucose, free fatty acids, blood ketone bodies, and insulin-like activity of serum were measured. The 24-hr. urine collections were analyzed for true glucose, total nitrogen, ketone bodies, and creatinine. Two studies to evaluate glucocorticoid administration are also done. Prednisone was administered. The observations were consistent with the idea of primary control of lipid mobilization at the level of adipose tissue, plasma free fatty acids being the major route of transport from fatty depots to other tissues. Prednisone resulted in a decreased response to fasting of blood ketone and free fatty acids levels, increase in blood glucose levels, and little increase in urine nitrogen excretion.

MEDICINE

Vol. 39, May, 1960

*Bone disease in chronic renal failure with particular reference to osteosclerosis. M. Kaye, J. E. Pritchard, G. W. Halpenny, and W. Light.—p. 157.

Bony Changes in Renal Failure. Twelve patients with osteosclerosis associated with chronic pyelonephritis are described. Food intake in patients with advanced renal failure is frequently reduced, and this was true of many of the patients in this series as their disease progressed. The urinary calcium was invariably low and showed no apparent relationship to the calcium intake, whereas fecal calcium was close to the dietary calcium intake, suggesting either impaired utilization of dietary calcium and/or a high endogenous fecal calcium.

METABOLISM

Vol. 9, August, 1960, Part II

*Metabolic effects of glucagon in human subjects. J. M. Salter, C. Ezrin, J. C. Laidlow, and A. G. Gornall.—p. 753.

Effects of Glucagon. Intravenous infusions and intramuscular injections of glucagon were administered to eight patients with rheumatoid arthritis and related disorders, because it was postulated that glucagon might have anti-inflammatory properties like those of cortisone. The patients were maintained under metabolic ward conditions on a constant dietary intake. The intravenous infusion of glucagon beginning at 8 a.m. elevated the fasting blood sugar level of all the patients. In all patients, the intravenous administration of glucagon produced an increase in urinary nitrogen excretion that was sustained until treatment stopped. In most instances, creatine excretion was decreased; creatinine and amino acid excretion were not affected. Anorexia and nausea were common. Some patients with acute joint inflammation experienced temporary benefit, but the degree of improvement was not enough to offset the undesirable side effects.

NATURE

Vol. 187, September 3, 1960

*Planning for the changing world population. M. K. Milne.—p. 816.

Our Developing World. The world population will be doubled in less than forty years if the present rate of increase continues. The importance of the present distribution of population cannot be overlooked. The conclusions drawn are that the population of the earth could be increased to many times its present number without starvation, provided man-made barriers are broken down and food is produced efficiently by a comparatively small number of specialist farmers.

NEW ENGLAND MEDICAL JOURNAL

Vol. 263, July 21, 1960

*Physiologic availability and in vitro release of riboflavin in sustained-release vitamin preparations. A. B. Morrison, C. P. Perusse, and J. A. Campbell.—p. 115.

Release of Riboflavin. Studies were conducted on the physiologic availability and *in vitro* release of riboflavin from sustained-release vitamin preparations. Of five products tested, nine showed sustained urinary excretion of riboflavin in human subjects or gave full availability of the vitamin *in vivo*. Sustained urinary excretion of riboflavin was obtained, however, by dosing at 2-hr. intervals, and the percentage excretion under these conditions was similar to that when the same amount of the vitamin was given as a single dose. The rate of release of riboflavin in simulated gastric and intestinal juices differed markedly from product to product and was not closely correlated with *in vivo* results. Tablets of one product, containing all the vitamin A, most of the thiamine and lesser amounts of the ascorbic acid, niacin amide, and riboflavin present in the original tablet, were recovered from the feces of three subjects. On the basis of available information, the formulation of sustained-release riboflavin preparations seems unwarranted and unnecessary and claims for any physiologic advantage to this type of medication seems unjustified.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 60, August 1, 1960

*Exercise and weight. C. M. Young.—p. 2449.

Vol. 60, September 1, 1960, Part I

*Treatment of obesity with a new anorexiant, diethylpropion, without special stress on diet. L. Decina and H. Tanyol.—p. 2702.

The Bureau of Nutrition of the New York State Department of Health. J. H. Browe.—p. 2735.

Exercise and Weight. In practical terms in both the prevention and cure of obesity, much more attention needs to be focused on the role which exercise can play. Exercise is the only practical way to increase energy ex-

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penditure. As Mayer and Stare have pointed out, a decrease in physical activity is not necessarily accompanied by a decrease in appetite nor is a moderate increase in exercise accompanied by an increase in appetite. The increase in weight so common in the less active, middle-aged person, in the young man released from active military service, or in the person who switches from walking to driving a car illustrates the failure of appetite to keep pace with diminishing energy expenditures. Energy balance in all cases could be re-established by decreasing the caloric intake, but at a cost in gastronomic discomfort that a moderate and regular increase in activity would overcome. Exercise can be a practical tool both in the prevention and treatment of obesity, but only if it is carried out frequently, consistently, and in moderation. One of the principal preventive measures which could be suggested for future generations is the development from earliest childhood of habits of physical activity which could become a part of the child's lifetime living pattern.

New Anorexiant. Preliminary results in terms of weight reduction from the use of a new anorexic drug, diethylpropion, are reported. Twenty-eight patients, divided into two comparable groups, were used; one received active medication, the other a placebo similar in appearance. Neither group was on a rigid caloric restriction. The average weekly rate of weight loss was 1.26 lb. for patients who took diethylpropion; for those who took the placebo, it was 0.49 lb. The difference in weight loss was significant statistically. No discernible adverse effect on the blood pressure or pulse rate was present. These results indicate that, with diethylpropion, appetite can be curbed without stimulating the central nervous system.

NURSING OUTLOOK

Vol. 8, September, 1960

*You can help your profession by writing. N. A. Crawford.—p. 513.

Writing for Your Profession. Though this article is slanted toward the nursing profession, the principles apply to the field of dietetics, also. The prestige of the nursing profession has been accelerated by the growing literature about it. Factual writing, for a profession can be done by any intelligent person who knows the rudiments of language and is willing to follow a few simple rules. The first step is to get rid of any defeatest attitude; then, pick a subject. Check through periodical indexes, such as *Index Medicus*, to see what has been published on the subject, read everything you can on it, and keep a card file of notes on each article. Next, consider your audience and start the article in a way that will appeal to them. There are three factors to keep in mind while writing: interest (keeping attention of the reader through vivid writing, using active verbs, image-producing words, and direct quotations; accuracy; and clearness. A first draft then needs revising and revising. A final point—don't argue with the editor. He knows what will appeal to his readers and to quarrel with him is a sure mark of inexperience.

NUTRITION ABSTRACTS & REVIEWS

Vol. 30, July, 1960

*The vitamin content of carcase meat and other edible tissues and organs. F. C. Aitken and D. L. Duncan.—p. 743.

Vitamin Content of Meat. The content of B-vitamins, ascorbic acid, and vitamins A and E in raw carcass meat and other edible tissues and organs is presented in thirty-three pages of tables. Values for vitamins in cooked meat are not included because such values are of little use without details of proximate composition, or change in weight of food during cooking, and of method of cooking. The tables give, as well as mean values, ranges of values which are either the range of individual values or the range of means of groups of samples.

NUTRITION REVIEWS

Vol. 18, September, 1960

*Nutrition problems and Progressive Patient Care. J. H. Moss.—p. 257.

Nutritional Problems in Progressive Patient Care. Change in the function and approach of the hospital in providing a therapeutic environment for optimal patient care has resulted in the concept of "Progressive Patient Care." The Progressive Patient Care hospital customarily divides the care requirements into three categories: intensive care, intermediate care, and self-care. This paper considers the area where nutrition and philosophy of patient care overlap. The logistical aspects of hospital nutrition should be re-examined in the light of the Progressive Patient Care concept. Many patients requiring intensive care facilities place no demand on the dietary facilities of the hospital, while others in the same area require special dietary consideration consistent with the reason for hospitalization. The intermediate care area poses much the same problems as a conventional hospital, except that there are no seriously ill ambulatory patients. The self-care area is characterized by the patient going to the food rather than vice versa. This unit provides an optimal medium for dietary and nutritional control and education. Thus, the concept of Progressive Patient Care calls for a revamping of hospital food service and dietetic philosophy.

PEDIATRICS

Vol. 26, September, 1960

*Iron deficiency in the premature infant. Significance and prevention by the intramuscular administration of iron-dextran. J. A. James and M. Combes.—p. 368.

*Comparison of oral and intramuscular administration of iron for prevention of the late anemia of premature infants. A. L. Sitarz, J. A. Wolff, and F. H. VonHofe. —p. 375.

Iron Deficiency. Iron deficiency anemia, infections, and diarrhea are common in premature infants. Because of the wide belief that iron-deficiency anemia is associated with increased incidence of infections and that this anemia may be prevented by supplemental intramuscular iron, this study was carried out. A group of premature infants who weighed 2000 gm. and survived the neonatal period were given 1 cc. iron-dextran daily for five days by deep intramuscular injection, thereby supplying 250 mg. elemental iron, a quantity sufficient to meet the iron requirements of growth during the first year, even if no iron were added in the diet. Follow-up studies on hemoglobin, micro-hematocrit, weight, and morbidity, especially in relation to infections and mortality, were carried out in this group and in a group of controls to whom no supplemental iron was given. Hemoglobin values were significantly higher by the ninth week in the iron-dextran group and none showed any significant anemia, whereas almost all the controls developed iron-deficiency anemia during the first year. No significant difference in weight and general development was noted between the two groups, nor was there any difference in the incidence of infections. It appears, therefore, that iron deficiency is not a major factor in the high incidence of infections in premature infants. The usual diet cannot keep up with the increased demand from rapid rate of growth. The use of fortified milk and strained meats may provide sufficient iron, but intake of oral iron salts is the common practice at present. This study shows that the intramuscular injection of iron-dextran can prevent iron deficiency anemia in premature infants.

Administration of Iron in Infant Anemia. It has previously been shown that the late anemia of prematurity responds to oral and to intramuscular administration of iron preparations. In a study of 100 prematures with birth weights of 1800 gm. or less, consecutive patients received alternately oral ferrous sulphate or intramuscular iron-dextran from the time they reached a weight of 2100 gm. Repeated blood studies were done and compared with findings from an untreated group. There were no significant differences in the hemoglobin, erythrocyte count, reticulocyte count, or blood indices between those receiving iron by mouth and those receiving iron by intramuscular injection at nine to twelve months of age, and these values compared favorably with values in full-term infants whereas available values for the untreated infants were much lower. This study appears to prove that intramuscular administration of iron preparations is efficacious in preventing late anemia of prematurity.

POSTGRADUATE MEDICINE

Vol. 28, July, 1960

*Nutrition in clinical medicine. Food faddism —a growing threat. A. M. Beeuwkes.—p. 75.

Food Faddism. The growing threat of food faddism is discussed. Many factors influence the existence of food faddism, such as effective means of communication and an improved economy which permits people to spend freely for expensive fads. Despite our remarkable advance in knowledge, nonsense has never before interfered more effectively with the application of the science of nutrition in the feeding of Americans, both sick and well. It is likely that if more money is spent on health foods and specific nutrients, it will decrease the contribution of a sensibly planned diet. Professional groups must consider food faddism an important issue. For many years the Bureau of Investigation of the American Medical Association, The American Dietetic Association, the Food and Drug Administration, the Better Business Bureau, and the U. S. Post Office have attempted to combat fraud with fact. It is obvious that a more vigorous program of education is needed. The American Medical Association, in cooperation with the Food and Drug Administration and the Better Business Bureau, has taken bold steps to provide every interested physician with information and tools to assume leadership in a nationwide program to combat ignorance with education in nutrition. Nutritionists look to the medical profession for leadership and offer their support in the renewed effort to lessen the influence of the quacks.

PROCEEDINGS OF THE NUTRITION SOCIETY

Vol. 19, No. 2, 1960

*Nutritional problems encountered in social work among the elderly. D. Newman.—p. 116.

*Nutrition and longevity in animals. A. Comfort.—p. 125.

*Osteoporosis and calcium deficiency. B. E. C. Nordin.—p. 129.

*Disorders of the nervous system in malnutrition. C. J. Earl.—p. 137.

*Intake and expenditure of calories by the elderly. V. G. A. Durnin.—p. 140.

Nutrition Problems in the Elderly. Many of today's medical problems clearly have a large social content, and the possibility that the converse is true is currently receiving attention. This paper is presented by a worker of the British National Old People's Welfare Council and considers nutritional policy in the elderly. There has been little information on the part played by nutrition in the aging process. In the matter of dietary guidance, there has been nothing to meet the needs of those approaching retirement and little to steer people into an awareness of the importance of this subject in their later years. "Meals-on-wheels" service is discussed, and if this service is to be useful, there should be some defined objective, such as the supply of the daily protein requirements. A great help in the success of feeding people in their own homes would be given by the working out of an agreed dietary. The nutritionist's contribution to the elderly is of basic importance.

Nutrition and Longevity in Animals. Though it is extremely easy to kill animals prematurely by dietetic means, there are relatively few ways of making them live unusually long. Studies with rodents show that caloric intakes below the optimal level for rapid growth increase the life-span. At least two effects seem to be present —a reduction in the pathologic processes induced by overfeeding, and an actual postponement of development, and consequently of senescence. The results of mild restriction probably represent the first, and of severe restriction which actually checks growth or retards reproduction, the second. The analogy must be treated with reserve, but excessive nutrition may well contribute substantially to the incidence of presenile diseases in prosperous people today, and hence to an effective acceleration of statistical aging.

Osteoporosis and Calcium Deficiency. It appears that the dietary calcium intake of the population is not necessarily as adequate as it is generally assumed, and that by analogy with animal experiments, negative calcium balance might be expected to produce osteoporosis in man. The data these investigators have collected so far are compatible with this concept, which is further supported by radiocalcium studies on rate of bone formation and by the results of therapy with calcium supplements and of calcium balances, which will be reported elsewhere.

Nervous System Disorders in Malnutrition. Nervous system disorders were recognized during World War II among prisoners and populations subsisting on inadequate diets. Today there are conditions of the nervous system in the elderly which might easily remain undiagnosed if the possibility of nutritional disorders were not entertained. In this paper, the author considers three conditions: first, an abnormal neurologic state thought to be due to deficiency of nicotinamide; second, polyneuritis; and third, nutritional amblyopia or nutritional retrobulbar neuritis. There can be no doubt that a lack of the B-vitamins is the cause of polyneuritis, although there is still a good deal of doubt as to exactly which deficiency is responsible.

Caloric Intake and Expenditure in the Aged. The inadequacy of the data on caloric intake and expenditure by the elderly leaves a gap in the knowledge of "nutrition and the elderly." It is probably generally thought that the caloric requirements of elderly people are substantially smaller than those of comparable young adults. The extent of this difference is hypothetical and may occasionally be almost mini-

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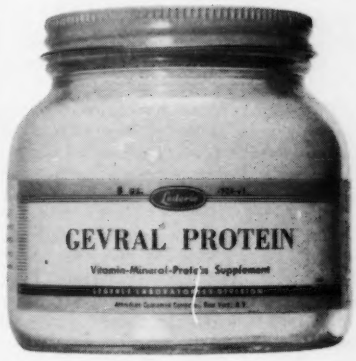

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Vitamin B_{12} with AUTRINIC® Intrinsic Factor Concentrate	1/15 U.S.P. Oral Unit
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Inositol	25 mg.
Ascorbic Acid (C)	25 mg.
Rutin	12.5 mg.
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Calcium Caseinate	21 Gm.
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mal. Changes in physical activity, body composition, and efficiency of muscular movements are the three factors which must be considered in the total gross metabolism of the body with aging. Until a much larger number of really reliable surveys on caloric intake and expenditure by the elderly are made, theorizing in a most unsatisfactory manner will continue. Perhaps when the zoologists complete their metabolic studies on Arctic foxes and brent geese, they will turn to man.

PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Vol. 104, July, 1960

*Dietary fats and effects of internal radiation by P^{32}. C. Artom and H. B. Lofland, Jr. —p. 396.

Fats and Internal Radiation. A comparison was made of the effects of internal radiation on mice fed a fat-free diet and diets with a high content of coconut oil (saturated fat) or corn oil (unsaturated fat). In the first experiments, the mice were maintained on one of the following diets for three to fifteen days: Diet A (fat-free), Diet B (corn oil added), or Diet C (coconut oil added). In the second series of experiments, the mice received fat-free diets plus one of the following supplements: coconut oil 3 per cent, corn oil 3 per cent, or linoleic acid 1.5 per cent. These diets were continued for a period of from seventeen to twenty-eight days. The mice were then injected intraperitoneally with 0.2-0.3 ml. Ringer's solution of phosphate containing P^{32} and continued on the above diets for six more weeks. Control groups of mice were maintained and injected with Ringer's solution only. Mice fed fat-free Diet A survived in greater numbers and for longer than those on Diets B or C. The diet with a high percentage of corn oil gave much better survival results than the diet of hydrogenated coconut oil. Susceptibility of animals toward radiation damage was affected by both the level of dietary fat and its content in essential fatty acids.

PSYCHOSOMATIC MEDICINE

Vol. 22, July-August, 1960

*A comparison of psychological characteristics and physiological reactivity in ulcer and rheumatoid arthritis groups. I. Psychological measures. S. E. Cleveland and S. Fisher.—p. 283.

Physiologic Measures. Twenty-six male veterans with arthritis and thirty-three male veterans with a diagnosis of ulcers were given psychologic tests to discover some of their attitudes. The patients with rheumatoid arthritis enjoyed hunting and fishing. They expressed a decided interest in cooking and household activities. They also tended to become angry with "show-offs." The ulcer group showed little interest in cooking, and were interested in sports more than hunting. They did not become angry with "show-offs." It was learned that there was great hostility in both groups, but they have different methods of disposing of it.

PUBLIC HEALTH REPORTS

Vol. 75, September, 1960

*Microbiological standards for foods. Conference Report.—p. 815.

Microbiologic Standards for Foods. This is a report of a conference on microbiologic standards for foods held in June, 1960, in Washington, called by the Division of Medical Sciences of the National Academy of Sciences–National Research Council. The issues discussed included: (a) Are microbiologic standards for foods necessary and desirable? (b) To what classes of food products should standards be applied? (c) What microbiologic tests are applicable to foods? (d) How should limits be determined? (e) What practical results may be expected from the application of reasonable microbiologic standards? None of the questions posed was solved specifically or absolutely. For such answers, the conference looked forward to specific studies.

QUARTERLY BULLETIN OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

Vol. 34, Fall, 1960

*Desoxyephedrine as an aid in weight control for pregnant clinic patients. M. A. Bayly. —p. 193.

An Aid in Weight Control in Pregnancy. Weight control is a major problem in the prenatal care of both private and clinic obstetrical patients. In this study, the use of desoxyephedrine as an aid in weight control for pregnant clinic patients was evaluated. The thirty patients taking one sustained-action 10 mg. tablet of desoxyephedrine each morning gained an average of 0.302 lb. a week for an average of fifteen weeks. The thirty patients taking the placebo gained 0.534 lb. a week for an average of sixteen weeks. It is felt that desoxyephedrine as used in this series is a valuable aid when used in conjunction with the principles of good prenatal care.

SCIENCE

Vol. 132, September 23, 1960

*Relationship between feeding and satiation centers of the hypothalamus. W. Wyrwicka and C. Dobrzecka.—p. 805.

Vol. 132, September 30, 1960

*Food and Agriculture Organization completes 15 years. R. W. Phillips.—p. 871.

Feeding and Hypothalamic Satiety Centers. It is known that two hypothalamic centers are involved in the regulation of food intake. These are: the lateral hypothalamic area, the electrical stimulation of which produces hyperphagia and whose destruction leads to aphagia; and the medial part of the hypothalamus, mainly the ventromedial nucleus, the stimulation of which decreases food intake while destruction results in hyperphagia and obesity. It is postulated that the lateral hypothalamic area, a "feeding center," contains a basic mechanism for food intake, while the ventromedial nucleus, a "satiation center," contains an inhibitory one. In this study, the relations between feeding and satiation centers during conditioned reflexes were observed. Electrical stimulation of the ventromedial hypothalamus inhibited the conditioned movements and food intake in hungry goats. This also occurred in those satiated goats in which eating and conditioned movements were elicited by stimulation of the lateral hypothalamic area. Withdrawal of the stimulation of the medial hypothalmus evoked a short after-effect in the form of a recovery or increase in the trained movements and food intake.

Food and Agriculture Organization. On October 16, 1945, representatives of thirty-four nations signed the constitution of the Food and Agriculture Organization of the United Nations (FAO). The terms "food and agriculture" in FAO's name cover the broad fields of agriculture, fisheries, forestry, and nutrition and the agricultural, economic, and statistical problems related to these fields. Within these fields, it is the task of FAO to assist governments in developing their programs and projects aimed at improving agricultural production, processing, and distribution. Thus, FAO is in a sense an international extension service with governments as the recipients of its services. This does not mean that FAO is concerned only with the applications of science. It is also concerned with research in all its fields of endeavor. But, FAO is not the doer of research, or the conveyor of new knowledge to farmers through extension, or the provider of credit. Its task is to assist governments in doing these things or in improving ways of doing them.

SURGERY, GYNECOLOGY & OBSTETRICS

Vol. 111, October, 1960

*Surgical treatment of the postgastrectomy dumping syndrome. E. R. Woodward and N. Hastings.—p. 429.

Post-Gastrectomy Dumping Syndrome. The "dumping syndrome" commonly occurs after eating. This is especially true if the food is highly concentrated liquid carbohydrate or highly concentrated protein. The ingested food leaves the stomach at too fast a rate and too high a concentration, thus producing the dumping syndrome. The authors studied 1366 patients who had undergone gastric surgery. These patients were observed in a clinic between 1947 and 1954. There were twenty-one who underwent corrective surgery. Through these cases, it was demonstrated that the surgically created stoma which connects the stomach stump and the intestine must be very small in diameter to prevent rapid passage of food through the intestine. It was found that the patients' condition improved, and for the first time since their gas-

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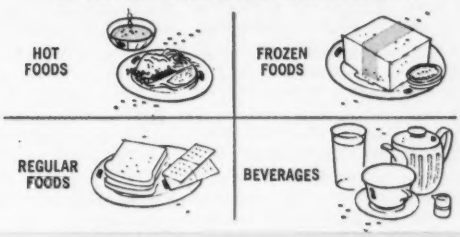

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trectomy they could eat an adequate diet. In nineteen cases, there was gain in weight.

UNITED STATES ARMED FORCES MEDICAL JOURNAL

Vol. 11, October, 1960

*Fluoridation of water for dental public health. K. R. Elwell.—p. 1085.

*Intestinal protozoa in family groups in four Japanese villages. D. E. Wykoff and L. S. Ritchie.—p. 1106.

Water Fluoridation. Dental caries is the most prevalent of the chronic diseases. Fluoridation of community water supplies is the most potent of all measures available for the mass control of dental caries and consistently reduces its incidence by as much as 65 per cent. About one of every four Americans is drinking water containing approximately the ideal fluoride concentration (1 p p m.) at a per capita cost of about 9 cents a year. The results of all types of investigations have shown that fluoridation is effective, safe, practical, and economical, and is superior to and much less costly than other means of obtaining fluorides.

Intestinal Protozoa in Japanese Families. This paper is concerned with the correlation of protozoan infections with known environmental conditions and family relations in a series of family groups from a rural area of Japan. Only 2 of the 172 families studied were completely free of protozoa. No seasonal influence was noted. The data did not reveal that infections in a family were particularly associated with one member more than another. Size of family and resulting crowding did not appear to be an epidemiologic influence of any consequence. Community-wide transmission was indicated. The epidemiologic picture embraced a series of factors that appeared uniform for rural Japan (sanitation, personal hygiene, prevalence of flies, practices of handling night soil, and general living habits) and that could not account for the variation of protozoa from one village to another. The water supply was a variable related to incidence. It is proposed that where incidence is high, as in the present study, water may be the predominant means of transmission, whereas other factors may be relatively more important in areas of moderate or low endemicity.

AMERICAN RESTAURANT

Vol. 44, September 15, 1960

*Glamorous canapes in 10 minutes at small cost. G. L. Wenzel.—p. 60.

Glamorous Canapes. Payroll economies more and more limit the menu of today's restaurant, be it small or large. However, if there is a way to offer little "extra services," customers will be quick to notice and approve. Given here is a fourteen-step procedure for preparing twenty-five packages of twelve canapes each. The food cost of a single package is 23 cents. A part-time employee in 4 or 5 hr. can take care of the entire project, the labor cost figuring out at about 21 cents per package. At a 40 per cent food cost, a package of twelve canapes would sell for $1.18; with the addition of olive and pickled onions, $1.25 or $1.50. Directions for packaging and freezing the canapes are included.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 29, September, 1960

*Cuisine that enhances appetite. Part 2. F. B. Floore.—p. 61.

Gourmet Cuisine. This is the second part of an article the theme for which is: "Into no department should indifference be allowed to enter—into none less than the domain of cookery" (the words of an eighteenth century Chinese scholar). The gourmet touch is suggested for such foods as fish and chicken. Preparation of snails requires special equipment—the procedure is interestingly described. Many desserts are improved by the addition of wine, rum, or liqueur. The possibilities of French desserts, particularly the maligned custard, are emphasized. Cultural patterns regarding the preparation of bread are described, and a review of our changing eating habits concludes the article.

DRIVE-IN MANAGEMENT

Vol. 19, September, 1960

*Cost reluction begins at the top. G. B. Cross.—p. 28

*Today's seafoods . . . how do they rate?—p. 36.

Reducing Operating Wastes. Any program of cost reduction must start with recognition of the fact that habit is the principal ingredient of cost control. The cost structures of some companies have changed so rapidly in recent years that it is no wonder they have lost control of some expenses. Because of the many changes, a program of cost reduction must start at the top; one of the worst wasters in many organizations is the boss himself. One of the most prevalent mistakes has been over-expansion. Another has developed through manager or owner absenteeism (being caught up in conferences, conventions, luncheons, and so on). A third way the boss often contributes to waste is by thoughtless disruption of company routines (demanding preparation of special reports). Finally, every boss should realize that cost control is contagious—employees will be just about as interested as the boss is. What a man does about cost control speaks louder than what he says about it.

Rating Seafoods. A survey of 113 drive-in operators indicates that most serve fish, with shrimp next in popularity and canned tuna third. The chief reason for serving a seafood line is profit. More than 78 per cent of those who serve fish purchase it preportioned and frozen, and 68 per cent buy it pre-breaded. In the fish sandwich, the 4-oz. portion is the most popular. About one-third of the operators use tuna in salads; shrimp is the next in popularity. Photographs of popular seafood plates are included with the article.

FAST FOOD MAGAZINE

Vol. 59, September, 1960

*Apples—how do you serve them?—p. 47.

Serving Apples. Baked apples account for the largest volume of fresh apples used in the fast food industry. Four methods are given for preparing them: top-of-range (pre-cooked in sirup, finished in broiler), oven-baked, skillet-"baked" halves, and the electronic range. Garnishes and flavor tricks are included, as are serving ideas. Speed cues in preparation are not forgotten. Canned apples are brought to the reader's attention. Buying tips are included for fresh, canned, and frozen apples. In conclusion, studies made by Dr. Lendal H. Kotschevar indicate the comparative cost of fresh, frozen, and canned apples on the basis of preparation (canned being fastest and cheapest). Canned apples also won as far as cost was concerned in making apple pie, brown Betty, and apple sauce.

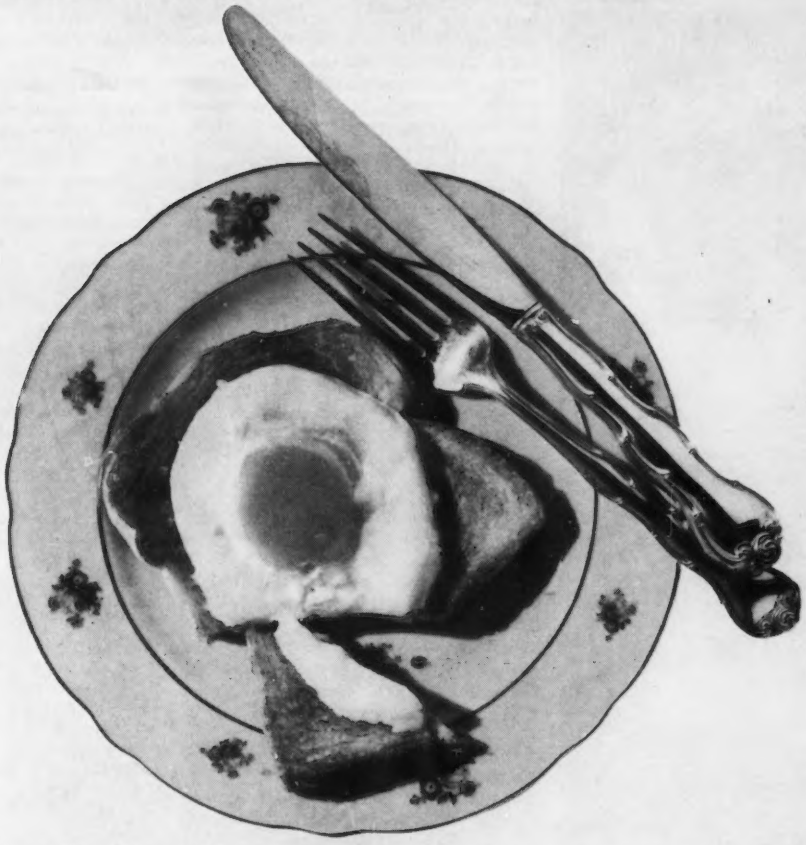
FOOD RESEARCH INSTITUTE STUDIES

Vol. 1, May, 1960

*Food for peace. J. S. Davis.—p. 135.

Food for Peace. President Eisenhower's "Food for Peace" program—new in name only—is an attempt to utilize our agricultural surpluses in the interest of reinforcing peace and the well-being of friendly peoples throughout the world. A still stronger policy is urged in various quarters, especially among church people. The issue between those who support one program or the other is by no means settled. Progress toward solution is hampered by distortion of facts, omission of pertinent truths, and widespread misunderstanding. This paper is a contribution toward clarification of the complicated topic. The actions of our government in providing surplus foods for needy countries, our cooperation in the World Health Organization, the Pan American Health Organization, and the United Nations Children's Fund, and Marshall Plan aid to Western Europe are cited along with specific acts of Congress to indicate what the U. S. has been doing. Surplus food disposals encounter limiting factors and show no promise of eliminating under- and malnutrition where these are chronic. This is a long-term challenge that can be met only by helping low-income countries to realize their own potentials (the factors primarily responsible for the poverty and low nutritional status in India, for example, include illiteracy, ignorance, underemployment, wasteful marriage and funeral customs, taboos, the caste system, lack of enterprise, primitive

many sick patients *don't, can't* or *won't* eat



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*Pareira, M. D.; Conrad, E. J.; Hicks, W., and Elman, R.: J.A.M.A. *156*:810-816 (Oct. 30) 1954.

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technology, and over-rapid population increase. Some of these factors cannot be attacked from the outside.) The author concludes that the "Food for Peace" program merits endorsement but should not arouse excessive expectations, especially for its contribution to world peace. Those who would expand it greatly, or replace it by something vastly larger, have a heavy burden of proof.

FOOD SERVICE MAGAZINE

Vol. 22, September, 1960

*Deep fried seafood on your menu. H. Sanstadt.—p. 41.

*Shop talk about fry kettles. J. R. Norris.—p. 48.

*It's new—deep fried lobster tail. R. Lundgren.—p. 57.

*Take a critical look at your menu. J. Rock.—p. 58.

*The care and use of trays. D. W. Stewart.—p. 62.

Seafood on the Menu. The advantages of low cost, "just-caught" flavor, ease of preparation and cooking, quality of cooked product, and easy inventory and cost control are illustrated. Photographs, some in color, help to dramatize the effectiveness of seafood plates for restaurant service.

Fry Kettles. The restaurant without a fry kettle would soon be out of business; deep-fat frying has become that important. Topics covered are: preparing food for frying, use of the thermometer, and maintenance of electric fry kettles. Seven advantages of electric kettles are outlined, and twelve floor and counter model electric fry kettles are illustrated. Manufacturer information is also available.

Deep-Fried Lobster Tail. A prestige item, South African rock lobster tail, cooked-to-order-in-2-min., has been largely ignored by many restaurants. Preparation details are given.

Look at Your Menu. The menu gives a customer one of his first impressions of an eating place. Common menu faults include too-small type, inappropriate paper, marked or spotted cover, misspelled words, old prices crossed out, art work outdated, menu too small or too large, color or ink that rubs off, and blurred copies. Many hints are given for attractive menus which serve as a "shopping list," a selling and merchandising tool, and an agreeable reading assignment.

Trays. Trays need to be fitted to the individual situation. Size, shape, weight, even color are important. Most cafeterias prefer the 14 by 18 in. tray; school cafeterias often purchase smaller trays, 12 by 16 or 10 by 14 in.; hospitals usually buy large trays, 15 by 20 in. However, don't be governed by what everyone else buys. Weight is another factor (who will carry the trays and what will be carried on them?). As far as color is concerned, trays should be tailored to blend with the decor. Care of trays is often a neglected phase of management. Keep the instruction sheet provided by the manufacturer and follow his instructions. Storage and dishwashing suggestions conclude the article.

FROSTED FOOD FIELD

Vol. 31, August, 1960

*USDA reports results of four frozen food studies.—p. 19.

Frozen Food Studies. Results of four studies on food freezing have been reported by researchers at the Western Utilization Research and Development Division of the Dept. of Agriculture, Albany, California. The first study was to provide data on the temperature tolerance of frozen ducks and geese. It was found that in spite of their high fat content, frozen ducks and geese resemble other poultry in quality retention during their commercial life. The second study, investigated the effect of speeding up poultry chilling by agitation of chill water. Using fryer chickens and fryer-roaster turkeys, researchers observed that fast chilling is an acceptable practice when adequate aging is taken into account. The third study was aimed at lowering costs and improving processing techniques for dehydrofreezing apples. Here, a research team showed that through-flow drying of the fruit is more effective than cross-flow. Information was also provided for use in solving problems associated with sulphur dioxide treatments used to prevent darkening of the apple slices. In the fourth study, progress has been made on the development of a salad-type dressing that will freeze and thaw without separating. Details of all four studies are contained in the article.

HOSPITAL MANAGEMENT

Vol. 90, October, 1960

*Reduce food costs. B. A. Rogers.—p. 76.

*Freeze your own ice cream and cut costs.—p. 80.

*How to train workers. Part I. D. L. G. Jacobs.—p. 89.

Menu-Matic Service. Built around punched card processing, the new menu service at Methodist Hospital, Indianapolis, is proving most successful. In addition to patient satisfaction, waste has been reduced in three ways: (a) Patients no longer get and waste food they don't like. (b) Reduction of serving kitchens (eliminating twelve out of sixteen) gives closer portion control. (c) Food is ordered more accurately, according to the likes and dislikes of the patients. The punched-card processing equipment is described. The system is used for both regular and modified diet patients, the regular diet patients checking their own menus. Four dietitians visit the patients on modified diets and check their menus for them. Two clerks check all 600 of the patients' meals and still have time for other duties. Specially designed electric carts are filled at the cold food station about 1¾ hr. before serving time; 1 hr. before the meal, the same process is followed at the steam table. Then the cart is plugged into an outlet in the corridor, awaiting meal time.

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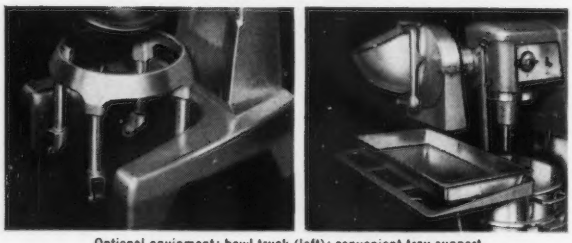

Optional equipment: bowl truck (left); convenient tray support for use with vegetable slicer, meat and food chopper, or juicer attachments.

BETTER BUY MIXERS...
BETTER BUILT BY HOBART

Cutting Costs with Ice Cream. By freezing and portioning its own ice cream, Central Islip (New York) State Hospital, has made this dessert a low-cost item—under 2½ cents a serving (including the cost of the paper cup). The hospital buys a complete dairy mix for three flavors, plus a basic mix to which three additional flavors are added. Each week, 60,000 portions of ice cream and sherbet are made. The system and equipment are described.

Training Workers. Procedures are given here for establishing an employee training program. Basic information is included—when training is given, types of training programs, and the "why" of training. Selection of instructors is considered, and attention is given to the steps to be taken by the instructor in preparation for teaching.

HOSPITALS

Vol. 34, September 1, 1960

*Employee training as a full-time staff function. E. G. Merritt.—p. 30.

*Guidelines for planning new and remodeled kitchens. A. Wilson.—p. 81.

Vol. 34, September 16, 1960

*Quotations: requisite to good buying practice. C. L. Johnson.—p. 97.

*Prepared mixes mix well in hospital menus. —p. 107.

Employee Training. Training is not a luxury, but an essential part of the function of management. A hospital of four hundred or more employees can use the services of a full-time training director; in the smaller hospital, the importance of training should be equated with other major administrative functions. Procedures are outlined in developing a training program, including a new-employee orientation session, and longer periods of training for the professional nurse, the practical nurse, the intern, the new department head, and a faculty member of the school of nursing. Training programs for nursing service personnel and other departments are considered next, followed by suggested ways to measure the effectiveness of the training program.

New and Remodeled Kitchens. Many suggestions are given for evaluating existing equipment, where remodeling is being considered. Steps to take in choosing new equipment are suggested. Ten rules are presented for planning new or remodeled kitchens, with special emphasis on proximity of work centers. After one has determined the needs of a food service, evaluated the existing equipment, decided on new equipment and planned the kitchen layout, re-evaluation is in order. A check list is included for just such a purpose. Fourteen areas are covered: food service director's office, receiving area, storage area, refrigeration facilities, food preparation area, modified diet preparation area, scullery, dishwashing area, cart washing, housekeeping, employee facilities, fabricated equipment, "buy-out" equipment, and source of supply

for fans and hoods. Points to be considered in each of these areas is included.

Quotation Buying. Purchasing by quotation offers an avenue of savings often ignored, particularly by smaller institutions. A written or formal quotation from the representative of the vendor is preferred, and at least three vendors should be contacted, to get a fair sampling of price. Specifications should be complete. Examples are given of how quotation purchasing saved money at Grady Memorial Hospital, Chickasha, Oklahoma. Items included printed forms, stainless steel ware, and disposable products. The permanent bid is discussed, too.

Prepared Mixes. Saving time and labor and controlling quality are among the advantages of using prepared mixes. Twenty suggestions for entrées, hot breads, and desserts utilizing prepared mixes, soups, or puddings are included. Photographs accompany each recipe. Among the interesting suggestions are baked apples using instant orange drink; lemon-coconut crunch bread pudding; bouillon potatoes; beef ragout, using tomato soup and wine; and tuna rolls.

INPLANT FOOD MANAGEMENT

Vol. 7, August, 1960

*Seafood expands your menu.—p. 17.

*Can you tell right from wrong in labor relations?—p. 38.

Seafood on Your Menu. The ways to serve seafood are numerous. Several pages are devoted to recipes and hints on preparation, as used at some industrial cafeterias. Such items as halibut au gratin, French fried shrimp, tuna corn burgers, salads, salmon loaf, and tuna chop suey are included. In all, eighteen recipes are given.

Labor Relations. This practical article presents six common employee problems and how they were handled by management. Each incident is taken from a true-life grievance which went to arbitration. The questions are: Does management have the right to reduce the work-week? Can you fire an employee who falsified his employment application four years ago? If an employer violates the union contract, do employees have a right to strike? Can an employee be fired for keeping company tools in his locker? Must you let an employee finish his trial period? Can a company use men to do "women's" work?

INSTITUTIONS

Vol. 47, October, 1960

*Items the architect or somebody may overlook.—p. 7.

*"Business as usual" during kitchen remodeling. G. G. Zipfel.—p. 14.

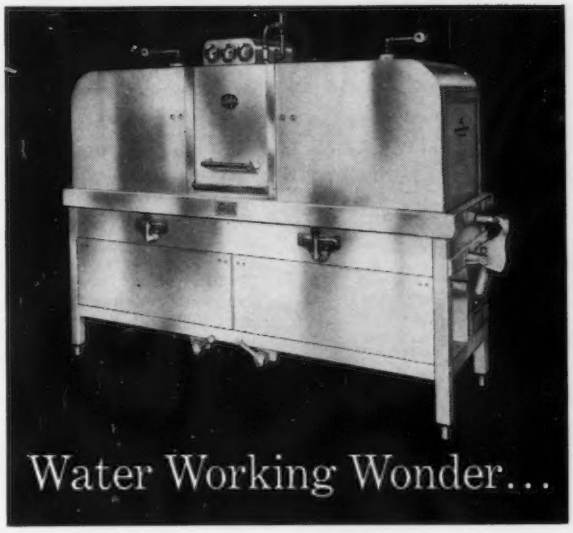
*Improving beverage service.—p. 50.

*A pretty kettle of fish.—p. 57.

*Sanitation for food service workers. T. Richardson.—p. 138.

*Make way for older workers. R. D. Stevens.—p. 160.

Planning Food Services. Why are there so many mistakes in planning food services? The architect cannot be



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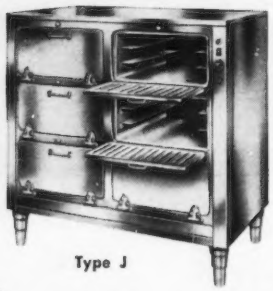

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expected to be familiar with the ramifications of food service management. The designer he consults may be an expert on equipment, its construction and functioning, and yet be ignorant of actual food service operating problems. The resulting mistakes can be overcome by thorough preplanning by everyone concerned. This article considers items which *Institutions'* readers would like to see included for practicality, easier maintenance, and "years-ahead" usage. Approximately twenty-three items are listed, including: adjustable and portable shelving, wider aisle space between pieces of equipment, more reach-in refrigerators, storage for 10-in. cans, more attractive TV-rest areas for employees, enter and exit doors on washrooms, doorways wide enough for mobile equipment, cleanable acoustic material, negative air pressure to prevent stale air from entering dining area, loading docks for at least two trucks, and greater use of quarry tile floors and ceramic tile walls.

Food Facility Remodeling. More and more, the food service consultant is becoming engaged in remodeling, involving expansion or re-arrangement of existing facilities, where it is stipulated that operations must continue while work is in progress. The author outlines the steps he takes in preparing a remodeling plan. It is pointed out that physical limitations of the plan give one concrete guides to evaluate, making it easier to think through and to achieve the things wanted. Where it is impossible to change physical limitations, the planner must accommodate himself and his ultimate plan to them. In any remodeling job requiring continued operation, it is vital to acquire some temporary space for preparation and service of food; this can come through expansion of the kitchen or from space borrowed by temporarily relocating a department. Several examples are given as to how such changes have been made. Work schedules—a must—are developed on the basis of the mechanics of the project. Successful remodeling requires maximum cooperation from everyone involved—the owner, the consultant, the contractors, and the kitchen personnel. It also inspires creativeness—menu changes, stimulated employees, and showmanship—which keeps patrons interested and satisfied.

Better Beverage Service. Some 8,000 to 10,000 cups of coffee and 115 to 125 cases of teabags (1,000 teabags to the case) are used each month at Mount Sinai Hospital in New York City. Both the raw product and the method of preparation were standardized to insure delicious beverages. Coffee is purchased once a week (a quality blend developed for the hospital) and prepared in small batches of 6 to 8 cups in the thirty-eight floor pantries. For the cafeteria, an electric urn is used. Similarly, a blend of tea was developed for hospital use as the result of taste tests. Mount Sinai has no "dry service" of tea (a cup of hot water with teabag served on the side). The teabag is placed in the cup and boiling water drawn over it. The coffee roaster and tea packer are expected to "service their client" continually, once the sale has been made.

Fish on the Menu. Seafood is an answer to rising costs. Each year, about 3,000,000 lb. fish and shellfish are caught commercially for food in the U. S. Purchasing and storage information is given for twenty-six varieties of fish and shellfish; best methods of preparation are suggested for each variety. Furthermore, about thirty-five quantity recipes from outstanding restaurants are presented.

Sanitation. Three questions are presented: (a) For a follow-up school for old employees, where may supplementary visual material be obtained? (The Communicable Disease Center, Atlanta, and the state health department are good sources.) (b) Is there a rat poison which, after eating, makes the rat go outside the premises to die? (Here again, the Communicable Disease center should have the answer; they have made a specialty of rodent control and can give complete information on every type of rat poison, no matter how recently developed.) (c) What are sources of reliable, free publications relating to the properties of different detergents and sanitizers? (Note addresses of manufacturers who advertise and write to them.) In addition to these sources of information, the value of contacting representatives of the chemical cleaning industry is stressed. These men are equipped to give talks at the employee level. Local health officers can also be a great help.

Older Workers. Many operators are turning to a relatively untapped group of workers—those over fifty years of age. As a result, two pressing problems are being solved—high employee turnover rates and shortages of responsible, experienced personnel. In addition, records show that older workers are absent less than younger ones; they are more loyal, less demanding, and more appreciative; they have the advantage of greater skill and more experience. They also get along with people, are more painstaking and accurate, and need less supervision. Physical strength is becoming less important. Selection of older workers should be influenced by the "can do" and "will do" traits. "Can do" factors include job knowledge and skill, mental alertness, health and physical condition, and verbal expression. "Will do" factors include job motivation, stability, perseverance, self-reliance, cooperativeness, competitiveness, loyalty, ability to get along with others, leadership, acceptance of responsibility, emotional maturity, and attitudes.

THE MODERN HOSPITAL

Vol. 95, September, 1960

*How to help supervisors do a good job of evaluating their employees. T. J. Broderick.—p. 89.

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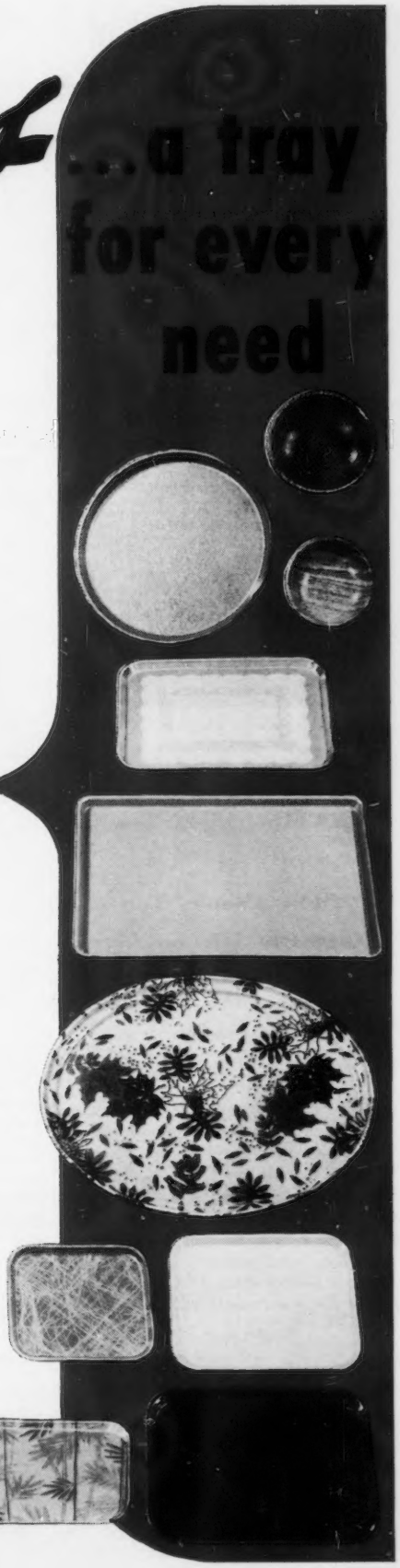

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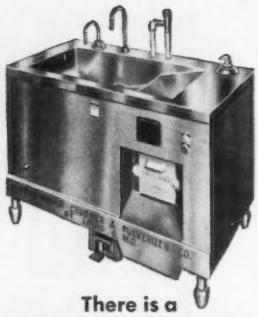

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*What's ahead for hospital kitchens? A. C. Avery.—p. 139.
*Garnishes add relish to hospital meals. I. L. Dolan.—p. 146.
*Right size meals at the right time will cut down patient complaints. J. Hartman.—p. 148.

Employee Appraisal Form. Employee appraisal-progress or merit-rating forms are a means of stating, in a formal system, judgments regarding employee performance. They facilitate guidance and correction of individual employees; provide a basis for considering employees for promotion, transfers, or terminations; and often determine eligibility for wage increases. Search for an appropriate form to use is the first step. Though forms found in the business world are helpful, and personnel textbooks provide basic rules, each institution should develop its own form. A newly developed appraisal form used at Seaside Memorial Hospital, Long Beach, California, is illustrated and compared in effectiveness with forms previously used. Also, a check list is included to help supervisors use an appraisal form.

Future Hospital Kitchens. The hospital kitchen as we now know it is obsolete. Yet, in the light of modern technology, amazing changes for the better are possible. Distances food has to travel from the receiving platform, storage rooms, preparation, cooking, holding, and service areas will be shortened (by use of skate-wheel-on-roller conveyors, belt conveyors, pipelines, pass-through windows, and so on). One piece of equipment will combine the operations now done by two (for instance, soup prepared in a steam-jacketed kettle and then refrigerated in the same kettle). All foods will be weighed or measured by mechanical or electrical means. Other electric devices will insure proper cooking temperatures and time. Tasks requiring skill will be grouped around the person having the skill, and equipment and materials will be arranged for minimum of waste and unproductive movement (salad or sandwich making is described in this light). Other innovations relate to mechanical menu writing and recipe development, meat storage, new lighting techniques, automation of the dishwashing process, and actual service of food. These are but a few examples of the areas of potential food, utilities, and manpower waste which will be dealt with by the nation's hospitals in the future.

Garnishes. Practical garnishing hints are given for foods served at every meal. At breakfast, broiled cling peach slices sprinkled with sugar and cinnamon add appeal to cereals. Soups with floats of sour cream or avocado slices are interesting. For desserts, grated chocolate, a strawberry, ground nuts, toasted macaroons, or whipped cream add interest. Garnishes for entrées and salads are highlighted, too.

Hospital Meal Hours. Many hospital routines owe their beginning to Topsy-like growth and their preservation to Newton's first law of motion. Such is the case with hospital meals. In most of the U. S., family meals follow a pattern of breakfast, lunch, and dinner; yet, too many hospitals offer the breakfast, dinner, supper plan. When this plan is related to hours, more complications appear. "Grotesque" to many patients is a dawn awakening to receive a near-dawn breakfast. At the other end of the day, supper—a light meal, will not carry the average patient comfortably for 12, 14, or more hours. With all factors in mind, an ideal meal schedule for most hospitals would be breakfast at 8 a.m., lunch at 12:30 p.m., and dinner at 6:30 p.m.

PERSONNEL JOURNAL

Vol. 39, September, 1960
*Time on their hands. R. D. Meade.—p. 130.

Subjective Time in Morale Problems. The demise of the craftsman and the simultaneous relegation of individual workers to roles of minor importance in the total scheme of the manufacturing process have diminished satisfactions formerly derived from creativity. This situation has resulted, with increasing complexity, in serious problems of employee morale. Studies have been made of situations which change the *apparent* length of the work period. In the first of these investigations, the motivation of the individual who was being tested was the chief target of study. It would seem that the factors necessary for changing the apparent length of a period of time are: (a) the presence of some definite end-point in a task toward which an individual is working, (b) motivation to reach the end-point or goal, and (c) feed-back of information from the task itself in reference to progress toward attaining the goal. The lines along which further research will be carried are described. It is also noted that factors significant in distorting apparent time are those already known to be important in industrial morale and motivation. For instance, a study in Great Britain demonstrated that workers prefer jobs which have well defined and worthwhile goals. Production was higher and financial incentive plans more effective on these jobs than on those whose activities were viewed by the worker as being worthless. All of these observations underline the fact that the problem of subjective time as experienced by the worker is one of some magnitude. To what extent it can be manipulated to the worker's advantage and that of his employer is worthy of further consideration.

RESTAURANT MANAGEMENT

Vol. 37, September, 1960
*Avalanche or drift in frozen foods? T. R. Bradley.—p. 54.
*1600 products from the deep freeze. A. Easton.—p. 59.
*Quality control assured.—p. 67.
*Like money in the bank.—p. 72.
*Care and maintenance of stainless steel. Part II. Dishwashers. R. E. Paret.—p. 87.

Frozen Foods. Frozen prepared din-

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ners, stews, pot pies, and some types of casserole dishes which are popular in retail stores have not found the same acceptance in the food service market. A survey of restaurants, industrial plants, hospitals, school food service, and other types of institutions along with a study of materials, packaging, methods of freezing, storage, and delivery led to this suggested program: (a) National food processors need to do more market research to insure use of frozen prepared meals by the institutional market. (b) There is need for more consultation betwen food processors and manufacturers of equipment that will dispense and reconstitute these foods at the restaurant level. (c) The consumer's interest must be considered. (d) The restaurant operator's problems must be considered (equipment needed, cost, personnel and customer relations). (e) Manufacturers of food dispensing equipment should cooperatively standardize design and function to further reduce labor costs. (b) Standard packaging and elimination of "tailor-made" sales should be an objective. (g) A practical approach to the entire problem would be the formation of a committee to recommend future courses of action. This committee would represent the National Restaurant Association, Institutional Food Manufacturers of America, equipment manufacturers, USDA Marketing Service, industrial caterers' associations, and the American School Food Service Association.

Products from the Freezer. Some of the 1600 frozen food products now available are highlighted. Hints are included on handling vegetables; frozen fruits are discussed (with the caution to watch for weight variations in the drained product); baked goods and gourmet items are considered. Recipes are included for breast of chicken à la Kiev with fruit kabob and for baked pork chop with spiced apples (all using frozen products).

Quality in Frozen Foods. At a commercial cafeteria in Minneapolis, quality and economy prompt the operators to invest 15 cents of each purchasing dollar in frozen foods. The frozen foods most used are whole cranberries, turkey, seafood, and vegetables—spinach, broccoli, asparagus, peas, Lima beans, and cauliflower. Two procedures determine the use of frozen foods: (a) taste-testing before making a selection, and (b) making sure that delivery schedules and storage facilities are coordinated.

Seafood Survey. Summarized here are the results of a ten-city survey made by the Department of the Interior to obtain information which could be used by the fishing industry to increase product demand. In the ten cities, from 60 to 95 per cent of the 4418 establishments surveyed had purchased seafood in the previous twelve months. The greater majority had made purchases in the frozen processed form. Statistics are given on the purchase, attitudes toward processing and quality, packaging, methods of preparation and serving of frozen processed fish (i.e., ocean perch), frozen processed shellfish, and portion-controlled seafood. A table on the expenditures for frozen processed seafoods in the ten cities is included.

Care of Stainless Steel Dishwashers. The daily, weekly, and major periodic cleaning procedures for stainless steel dishwashers are outlined, step by step. Preparation of soiled dishes for washing is discussed, and good dishwashing practices are listed.

SCHOOL LUNCH JOURNAL

Vol. 14, September, 1960

*Uniform accounting procedures. M. Plewes and R. Schupp.—p. 20.

Accounting Procedures. A recent survey of the financial management of school lunch programs in Pennsylvania reveals a great need for a system of uniform accounting procedures. Three sources of revenue are available for most school lunch programs: cash sales, federal subsidies, and contributions from local school districts. Most profit-and-loss statements include the first two. The article contains tables and discussion of the various ways operating expenses are paid. It was obvious in this survey that the school district pays many of the hidden expenses of cafeteria operation, such as insurance, maintenance supplies and equipment,

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Savory's automatic toasting operation makes food service faster, easier and more economical because there's no wait for loading—no delay in toast delivery.
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—and Savory toasters are sturdy, and easy to clean, too.
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utilities, and capital outlay for land, buildings, and equipment. Therefore, the total cost of the cafeteria operation is actually more than is indicated in nearly all profit-and-loss statements of school lunch programs.

VOLUME FEEDING MANAGEMENT

Vol. 15, September, 1960

*Ready-to-cook meats add speed, cut space.—p. 24.

*Ham . . . a buying and serving guide.—p. 32.

*Utility "trunks" cut installation costs. O. Webber.—p. 59.

*Ice machines. Product evaluation report.—p. 69.

Ready-to-Cook Meats. Expanded facilities at an industrial plant in Sacramento mean continuing adjustments and changes in food service. One of the most significant of the new systems employed is the policy of buying all meats oven-ready and portion cut. A monthly meat bill runs about $14,000 out of a total food cost of about $27,000. Roasts are even sized for the pans, eliminating the need for butchering in the kitchen. Time, space, and personnel (three butchers) are saved. Meats from the purveyor are already aged, packaged in plastic film, and boxed. Deliveries are made three times a week. Both fresh and frozen meats are used. Storage pointers are given.

Ham Guide. One page is devoted to the listing and description of kinds and styles of ham. Cook-before-eating hams include smoked or regular, "Scotch," fresh, and ready-to-eat. Not-to-be-cooked hams are Proscuitto hams, imported from Italy. Then there are fully cooked hams. Styles of hams not canned include bone-in hams, skinless and shankless, round boneless, semi-boneless, and country style or Virginia. Canned hams are pear shaped, pullman shaped, and chopped pressed. Several quantity recipes are included.

Utility Lines. A new technique for simplification of the plumbing and utilities leads for hot and cold water, steam, electricity, and waste disposal involves grouping them in vertically disposed trunks or pedestals. Connections are made to the components of the equipment either immediately to the right or the left of each respective trunk. The advantages and economies of such an installation are cited. Sketches are included.

Ice Machines. Ice machines produce cubes, crushed, or flaked ice. Cubes have the advantage of being long-lasting. Crushed or flaked ice is used for "bedding" certain foods. Machines come in capacities of 200 to 2000 lb. (per day). As capacity increases, so does size. Life expectancy should be at least ten years, and maintenance is not a problem, though an ice machine, like any piece of machinery, needs routine inspection by a specialist. Suggestions are given as to where an ice machine should be located, capacity needed, and number of units required. It is pointed out that an ice machine increases in value the more it is used. Four manufacturers' products are illustrated and described.

WHAT'S NEW IN HOME ECONOMICS

Vol. 24, October, 1960

*The vocabulary of sauces.—p. 56.

*Meals on trays.—p. 58.

Sauces. Sauces today range from the hearty and savory sauces for main dishes to dunking sauces and sweet dessert sauces. Considered first in this article are the recipe-made sauces: the continental cream sauces (made from a roux and resulting in Béchamel, Mornay, Soubise, Bordelaise, Madeira sauce, and so on); those made with butter, as Hollandaise, Mousseline, sauce au beurre, and black butter; macaroni sauces; Italian sauces (Bolognese and Genoese); dips or dunking sauces; and dessert sauces, such as chocolate, butterscotch, orange, lemon, hard, fruit, and so on. Short-cut sauces are those available in jars and cans; packaged sauce mixes, soups, and "mock" sauces. The descriptions should be helpful in understanding menu terms, sauce ingredients, and appropriate uses.

Meals on Trays. Tray meals are no longer reserved for those unable to come to the table. The homemaker or individual who eats alone, teen-agers with their snacks, TV viewers, families without dining rooms are among those with whom tray meals are popular. Hints for settings of attractive, suitable trays are given, with special suggestions for trays served to convalescents, elderly people, and children.

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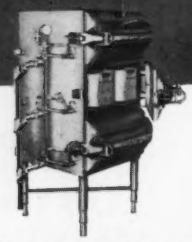
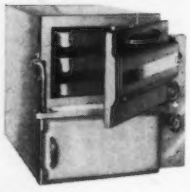
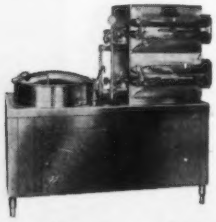
Fast and Easily!



3 compartment STEAM-CHEF — gas, electric or directly-connected to your steam supply.



Steamcraft is for smaller requirements, or for supplementing a STEAM-CHEF.



Steam-Chef Super Generator Cabinet Steam-Kettle Combinations are available in all types and sizes.

Here is TOTAL time . . . from insertion to removal . . . for restoring a standard 2½ lb. package of loose packed frozen vegetables.

Cut Corn (kernel)	3 minutes
Peas	5 minutes
Asparagus (jumbo)	5 minutes
Brussels Sprouts	5 minutes
Green Beans (regular)	5½ minutes
Broccoli (spears)	5½ minutes
Lima Beans (regular)	5½ minutes

This is just one of many uses for the hardest worker in the kitchen, your Steamcraft or STEAM-CHEF. You can *steam cook* most foods faster, easier, better and at less cost with a Cleveland Steamer.

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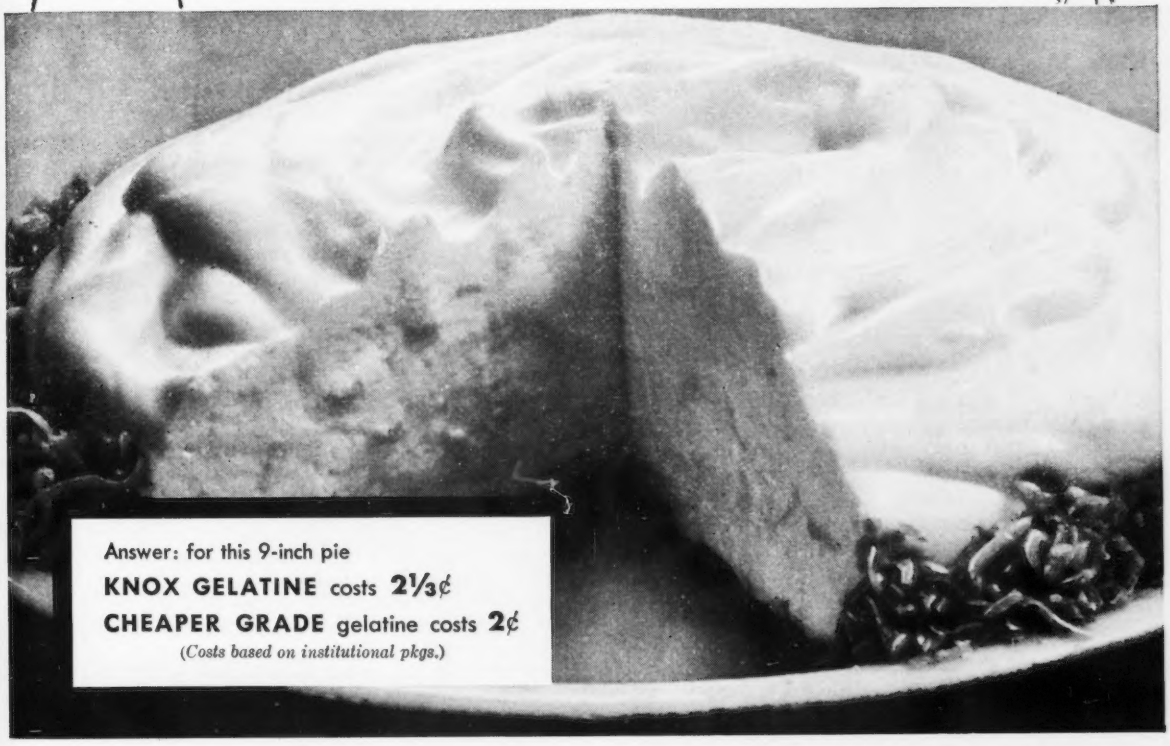
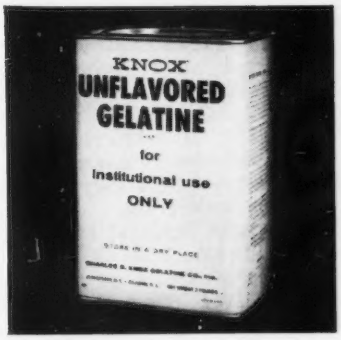


It pays to use the top quality...KNOX UNFLAVORED GELATINE

Whether a jellied dish is the chef's most gorgeous creation or the dietitian's simple Spanish Cream, the cost of the gelatine is only a tiny proportion of the total cost.

So why settle for anything but the best? Knox Unflavored Gelatine is always uniform in gel strength for sure results. Sets faster, frees refrigerator space for other foods. Made under rigid laboratory control to U.S.P. standards, Knox Gelatine is odorless and tasteless, plays up the full natural flavors of the fine, fresh ingredients you use.

Specify KNOX GELATINE in the new economical 3-pound package. You get more servings per pound with KNOX.



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BIOGRAPHICAL NOTES ON THE HISTORY OF NUTRITION

Sir Robert McCarrison—March 25, 1878–May 18, 1960

Robert McCarrison devoted a major part of his professional life to experimental studies on the relation of diet to disease. He was one of the first investigators to make a practice of carrying out complete post-mortem and histo-pathologic studies of the organs and tissues of experimental animals on deficient diets. His book, *Studies in Deficiency Disease* (1921), is a classic; he early showed the difference between inanition and dietary deficiencies.

McCarrison's work was done in India where he had the opportunity to observe the effects of different diets on man. One of his famous experiments was the feeding of rats on the diet of the Sikhs—mainly whole wheat, meat, vegetables, and milk—with resultant healthy vigorous animals and the striking comparison with the poor growth and health of rats fed diets comparable to those of Indians living on a "poor rice diet." McCarrison was not only a thorough and careful investigator; he saw the value of diet in preventive medicine and the need for education on nutrition. He prepared popular bulletins, posters, and charts and wrote a little book, *Food*, for the children of India. This was even more widely read by adults. In all, he published nine books and 159 papers.

Robert McCarrison was born March 25, 1878, of an old Irish family. He was educated at Queen's College, Belfast, and received his Bachelor of Medicine degree from the Royal University of Ireland (1900); his M.D. degree was from the University of London (1909) and the Doctor of Science in 1915. On completion of his medical training in Ireland, McCarrison entered the Indian Medical Service and began to devote himself to medical research. He started at Chitral (1902-04), where he studied the "three-day fever," and then was transferred to Gilgit (1904-11), where he began the extensive studies on endemic goiter (little being known at that time on the subject), which brought him world-wide recognition and resulted in four books on the subject. He early showed that goitrogens were present in food and were a factor in the production of endemic goiter.

After active service in World War I, McCarrison returned to India (1918) to Coonoor in the Blue Mountains of South India; at the Pasteur Institute there, he secured an empty room and with his own microscope and two untrained workers began the researches which were eventually to lead to the establishment of the Nutrition Research Laboratories with McCarrison as Director. When he retired from India in 1935, he left a well trained team of young Indian scientists who have continued the nutrition research though the laboratories have now been moved to Hyderabad. The first investigations at Coonoor were on beriberi, but soon other deficiency diseases were studied also. McCarrison's work showed always scrupulous care in attempts to control all variables in the experiments, deductions limited to those warranted by the experimental data, and an emphasis on the use of proper statistical methods in the interpretation of results. From his research, he was convinced that "the greatest single factor in the acquisition and maintenance of good health is perfectly constituted food."

On his return to England in 1935, he resided in Oxford, where he continued to write and lecture on nutrition. He served with the Ministry of Health during World War II, after which he organized and was administrator of the Oxford University Center for Postgraduate Education of Medical Officers released from the Services. He lectured widely on nutrition giving many "named" lectures in the U. S. (1921) and in England. Many honors were conferred on him, including honorary degrees from Queen's University and Oxford. He received medals and prize awards from the Academy of Medicine, Paris (1914); Royal Society of Arts, England (1924); University of Vienna (1934); and Royal Asiatic Society of Bengal (1940). He was knighted in 1933.

McCarrison was a charming and genial host, with a sense of humor and a keen interest in people. He died May 18, 1960, and is survived by Lady Helen Stella (Johnson) McCarrison.

REFERENCES: Personal communication, 1948; Obituary: Robert McCarrison. Lancet No. 7135: 1198 (May 28), 1960; Sinclair, H. M., ed.: The Work of Sir Robert McCarrison. London: Faber & Faber, 1952.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*

You can make news with *fruit fritters*

For side-order, garnish, or dessert, this specialty deep-fries to perfection in Heavy-Duty MFB, the shortening with the high smoke point

BATTER FOR FRUIT FRITTERS

Approximate yield: 1½ quarts

INGREDIENTS	AMOUNT
Flour	1 pound
Baking powder	2 tablespoons
Salt	2 tablespoons
Brown sugar	1 cup
Cinnamon, nutmeg, mace or ginger (optional)	1½ teaspoons
Eggs, beaten	4
Milk (variable)	2 cups
Wesson	3 tablespoons
Fruit*	
Heavy-Duty MFB	For deep frying

METHOD:

1. Sift dry ingredients together.
2. Combine egg, milk and Wesson.
3. Blend flour mixture into egg mixture until smooth.
4. Coat fruit with batter.
5. Deep fry at 375° in Heavy-Duty MFB until golden brown, about 1½ minutes.
6. Drain. If desired sprinkle with confectioners' sugar.

***FRUIT:**

1. Canned cling peach halves.
2. Pineapple slices or spears.
3. Thin apple slices or wedges.
4. Halved or quartered bananas.

Quik-Tips from Wesson for Extra Profits

- Serve fritters imaginatively: Apple with pork, pineapple with ham, peach with lamb or turkey.
- Gourmet dessert ideas: Serve fruit fritters with whipped or sour cream . . . with a sprinkle of powdered or powdered-and-brown sugars . . . or a la mode, with a scoop of fruit ice cream on top.
- For the all-use deep fryer, perfectly bland Heavy-Duty MFB insures no transfer of flavors—even to delicate fruit.
- All-vegetable Heavy-Duty MFB stands up under heaviest frying conditions, won't gum up your equipment.
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A.D.A. Members Receive Honors. The Legion of Merit, a military award rarely earned by women in the Armed Services, particularly during peace time, was awarded to *Lt. Col. Helen M. Davis*, AMSC, at the 42nd Annual Meeting of The American Dietetic Association in Cleveland. Col. Davis, who was formerly chief of the Army's hospital dietitians, was cited for her leadership in modernizing techniques in hospital food services and for her outstanding performance as director of food service activities for one of the largest Army hospitals from 1953 to 1956.

Beatrice Finkelstein was named the 1960 recipient of the McLester Award of the Association of Military Surgeons on November 2. She was honored for her outstanding work in the field of nutrition and dietetics. Miss Finkelstein is serving with the Physiology Branch, Aerospace Medicine Division, WAAD, Wright-Patterson Air Force Base, Ohio and has done much in the development of feeding programs for men who will be our first space travelers. The McLester Award is made possible through the contribution of the J. B. Roerig Company, Division of Charles Pfizer and Company, Inc.

Dietitian on Staff of *SS Hope*. Hazel Wessel, formerly on the staff of the UCLA Medical Center, is currently a part of the team staffing the medical mercy ship, *SS Hope*. On September 23, *SS Hope* sailed from San Francisco on its maiden voyage, headed for Indonesia, where it will visit many island ports until the end of April.

Project HOPE is a privately sponsored program to share this country's medical knowledge and skills with the newly developing countries in Southeast Asia. The cost for one year's operation will be about $3½ million, with all money coming from private contributions. *SS Hope* was formerly a Navy hospital ship and is being loaned by the U.S. government. It carries the most modern medical equipment and supplies, and training aids. The permanent staff includes 15 physicians, 20 nurses, 10 technicians, 2 dentists, and 2 dental technicians. Miss Wessel's assignment falls in the technician category. In addition, a team of 35 doctors will be flown aboard the ship on a rotating basis.

Part of the medical staff will work on shipboard, part will form mobile, inland teams. All will work with local physicians, surgeons, dentists, health officers, sanitation officials, nurses, midwives, and technicians in the countries the ship will visit. Training will also be conducted through classroom lectures and discussions, movies, and film strips.

SS Hope will visit only those countries that extend invitations. After Indonesia, a four-month stop in Viet Nam will be next. Invitations have also been received from Korea, Okinawa, and Pakistan.

The USDA has listed the following foods expected to be in plentiful supply during December:

Protein foods
Chickens—broilers and fryers
Peanuts and peanut products
Other foods
Cranberries
Dates
Onions
Vegetable fats and oils

Frozen Foods for December. During the holiday month of December, the National Association of Frozen Food Packers suggests the use of the following foods—all generally available—which can add piquancy to menus, at the same time saving labor time during the rush season.

Frozen Fruits

APPLES AND APPLESAUCE—Use the apples in pies and turnovers, the applesauce with pork chops or veal.

BLUEBERRIES—Serve with red and yellow fruits for color contrast and sweetness in salads and fruit cups. Add to plain muffin batter for a special hot bread.

PEACHES—Frozen peach halves may be used for dessert. Peach slices, defrosted and topped with a mixture of brown sugar, cinnamon, and butter or margarine, then baked in a moderate oven for 30 min., are delicious as either dessert or a meat accompaniment.

CHERRIES—Make a cherry sauce for meat by cooking red tart pitted cherries with a small amount of dry sherry and some cornstarch to thicken. Add lemon juice and almond flavoring if desired and serve with ham or turkey.

STRAWBERRIES—Use the whole berries as a treat and make chiffon desserts with the halves and slices.

CONCENTRATED JUICES AND ADES—Excellent for holiday punches because of their flavor retention.

Frozen Vegetables

ASPARAGUS — Especially enjoyed in winter. Include in luncheon menus featuring omelets or cheese soufflé. Decorate the asparagus with pimiento strips for the red-and-green theme.

PEAS—The favorite vegetable. Add to buffet chicken or seafood salads.

PUMPKIN AND SQUASH—For pies and tarts.

SPINACH—A perfect "go-with" for Friday seafood or a cheese soufflé.

M.I.T. Expands. Massachusetts Institute of Technology will create an augmented department to be named the "Department of Nutrition, Food Science and Technology," which will be formed around the existing Food Technology Department. Head of the new department will be Dr. Nevin S. Scrimshaw, currently Director of the Institute of Nutrition of Central America and Panama (INCAP), in Guatemala. The reorganization will allow M.I.T. to offer greatly extended curricula and research activities in order to place more emphasis on the basic sciences. A feature of the new program will be a cooperative relationship between INCAP and M.I.T. which will mean opportunities for students to pursue studies in association with INCAP. Dr. Scrimshaw will maintain an association with INCAP as a technical director.

Fellowship Awards. Two $3000 General Foods Fellowships for full-time study toward a master's or a doctor's degree will be offered for the year 1961-62 by the College of Home Economics, The Pennsylvania State University. Major areas of study which may be chosen by applicants include foods and nutrition, institution administration, and nutrition in public health. Deadline for applications will be February 1, 1961.

A number of graduate assistantships in teaching and research are also available from Penn State. These involve half-time work, with stipends amounting to $1710 for the academic year, work 20 hr. a week, with the student being allowed to carry 8 to 10 credits per semester. One-quarter and three-quarter time graduate assistantships are also available. Appointments for the 1961-62 academic year will be made on April 1, 1961.

Further information about the General Foods Fellowships or the graduate assistantships may be obtained from the Office of the Dean, College of Home Economics, The Pennsylvania State University, University Park, Pennsylvania.

Symposium on Clinical Nutrition. On November 30, the A.M.A.'s Council on Foods and Nutrition sponsored a Symposium on Clinical Nutrition in Washington, D. C. The program consisted of two panels, the first on "The Diagnosis of Nutrient Deficiencies." Physical examination in diagnosis was covered by Dr. William J. McGanity, Chairman, Department of Obstetrics and Gynecology, Medical Branch, University of Texas. Anthropometric evaluation was the topic presented by Dr. Stanley M. Garn, Chairman, Physical Growth Department, The Fels Research Institute. The third aspect of diagnosis, "The Dietary Appraisal," was handled by Dr. George V. Mann, Assistant Professor of Biochemistry and Medicine, Vanderbilt University.

The second panel dealt with "The

all this... and only 77 calories

ESSENTIAL NUTRIENTS IN ONE EGG

Protein.....6.1 Gm.
Carbohydrate.....0.3 Gm.
Fat.....5.5 Gm.
(Unsaturated Fatty Acids.....3.6 Gm.)
Also present, vitamins A, D, E, K, B_1, B_2, B_6, B_{12}, Pantothenic Acid, Niacin, Folic Acid, Biotin, and many essential minerals.

Few foods known to man provide a higher ratio of nutrient value to calories than do eggs.

The quality of egg protein is a standard against which the proteins of other foods are measured.

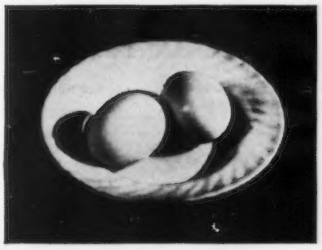
The cholesterol and fatty acid contents of two eggs—traditionally a widely preferred breakfast—fit well into the daily diet, even when lessened fat intake is recommended.

Because of their high nutrient value, their easy digestibility, compatibility, and nutritional complementation of other foods, eggs are included in the recommended dietary* for many conditions in which diet adjustment is indicated.

Eggs are listed in the daily recommendations of nourishing liquid, restricted fiber, low sodium, restricted purine, low-calorie, and many other diets.

**Recommended in the diet manuals of teaching institutions.*

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.



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SPECIFIED MIDDLEBY-MARSHALL

Revolving Ovens than any other make among the winners in the 1960 Food Service Contest*

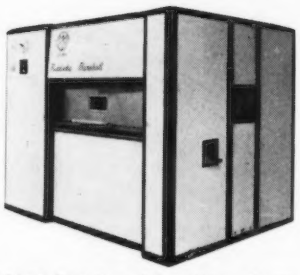
Since 1888, when it invented and marketed the first "movable" (i.e. non-brick) bakery oven, Middleby-Marshall has been accepted as the standard of quality wherever heavy duty ovens are known, in institutions and bakeries all over the world.

Foreseeing the coming of the day of spiralling costs and shortage of trained bakery and kitchen personnel, Middleby-Marshall began development of automated baking well over a quarter of a century ago. In 1937, at the request of the federal government, Middleby-Marshall worked with the U.S. Department of Justice, Bureau of Prisons, to adapt the revolving tray type bakery oven for full kitchen output.

It was found that in addition to tremendous savings in floor space, fuel, labor and in providing cooler, more comfortable kitchens, there was also a most significant improvement in quality of food and in yield—an average of approximately 25% more servings in roast meats, for example. The ovens also cut the need for highly-trained personnel.

Today the Middleby-Marshall Revolving Tray Oven is also available in units sized for smaller institutions, and is coming to be virtually standard equipment in institutional kitchens of all sizes.

This is graphically shown by the predominance of Middleby-Marshall ovens in kitchens of winners of Institutions Magazine's Food Service Contests*, year after year. This year, for example, there were eleven times more Middleby-Marshalls in the prize-winning kitchens than any other make.



Model H Revolving Tray Oven

There are 44 Middleby-Marshall ovens in these 1960 Award Winning Kitchens!

LaTunisia Restaurant, *Dallas, Tex.*
Hotel Mark Hopkins, *San Francisco, Calif.*
Indiana University, *Bloomington, Ind.*
Moisant International Airport, *New Orleans, La.*
Orient State Institute, *Orient, Ohio*
Polk State School, *Polk, Pa.*
State University of Iowa, *Iowa City, Ia.*
United Airlines, *San Francisco, Calif.*
University of California, *Berkeley, Calif.*
Allegheny General Hospital, *Pittsburgh, Pa.*
Bishop Buffet, *Des Moines, Ia.*
Columbus State School, *Columbus, Ohio*
Duke University, *Durham, N. C.*
Furman University, *Greenville, S. C.*
Harrah's Tahoe, *Lake Tahoe, Nev.*
New York Foundling Hospital, *New York, N. Y.*
St. Francis Hospital, *Evanston, Ill.*
Yohannan's Restaurant, *Atlanta, Ga.*
Southwestern Louisiana Institute, *Lafayette, La.*

FREE CONSULTATION SERVICE. Middleby-Marshall is delighted to work with dietitians, architects, food equipment consultants and equipment jobbers in developing detailed plans and specifications. Bulletins of various types, and special sizing information are available . . . just write and ask.

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768-C West Adams St., Chicago 6, Ill.

World's Largest Manufacturer of Bake Ovens—Since 1888

General Office and Main Plant: Chicago 6 ● Western Plant: Chubco, Oakland, Calif.

Management of Dietary Inadequacies." Dr. Robert L. Jackson, Professor of Pediatrics, University of Missouri, discussed "Principles—Food or Supplement?" This was followed by a round table discussion on "Can the Physician Bring about a Correction of Dietary Habits?" in which the previous speakers participated, as well as Dr. Robert E. Olson, University of Pittsburgh.

Symposium on Fat-Soluble Vitamins. New findings on vitamin A, research adding to growing recognition of the importance of vitamin E, and studies on some of the interrelationships of vitamin K were discussed at a symposium co-sponsored by the University of Illinois and the National Vitamin Foundation on November 7 and 8 in Urbana. The program included:

"The Absorption of Beta-Carotene and Its Conversion into Vitamin"—Dr. J. A. Olson, University of Florida

"Relation of Vitamin A Deficiency and Estrogen in Producing Uterine Metaplasia"—Dr. W. J. Bo, University of North Dakota

"The Biological Activity of Vitamin A Acid"—Dr. J. E. Dowling, Harvard University

"Vitamin A Function in Ubiquinone and Cholesterol Biosynthesis"—Dr. O. Wiss, Hoffmann-La Roche & Co.

"The Inhibition of Ascorbic Acid Synthesis by the Process of Lipid Peroxidation in Vitamin E Deficiency"—Dr. R. Caputto, Oklahoma Medical Research Institute

"The Nature of the Action of Selenium in Replacing Vitamin E"—Dr. J. G. Bieri, National Institute of Health

"Interrelationships between Vitamin K and Estrogenic Hormones"—Dr. Susan Mellette, Medical College of Virginia

Conclave on Fish to Be Held in 1961. Four hundred representatives from more than fifty nations are expected to attend the International Conference on Fish in Nutrition, to be held next year in September. The conclave, which will be sponsored by the Food and Agriculture Organization, will take place in Washington, D. C. The fundamental purpose of the meeting is to assemble the scattered information on the nutritive value of fish, to assess this information, and to stimulate future scientific investigation on this food source. One result would be to delineate the role of fish and fishery products in adding to the supply of protein foods in both developed and underdeveloped areas of the world. Speakers will include some of the world's leading scientists in this field.

Main topics being considered include the role of fish in world nutrition, the chemical composition of fish and fishery products, contribution of fish and fishery products to the diets of various nations; and possibilities

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50 servings — 3 ounces each
3 ounces Custom Chicken Base
12 ounces drippings
6 ounces flour
½ teaspoon pepper
1 gallon liquid—milk, whole or fat free (scalded)

METHOD—

1. Stir the Custom Chicken Base and the pepper into the hot liquid
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5. Cook until smooth and thick
6. Serve approximately 3 ounces over or under fried chicken, chops or well cooked salt pork

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Community Hospital
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Paper food service was adopted only after careful "acceptance" tests on patients and staff. It eliminated the need for new dishwashing equipment. Sanitation was improved. Space was freed for a walk-in cooler and deep freeze which permits advance portioning of many foods in paper cups and containers.

Paper food service cuts 1½ hours from the workday for kitchen personnel at luncheon—and the kitchen closes ½ hour earlier in the evening. Mr. Massey is certain that even when the number of beds is doubled, paper food service will still enable the present team of workers to handle the extra load on the kitchen.

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PAPER
the personal food service

for increasing fish consumption. Under such broad titles would be reports on the amino acid composition of the protein in fishery products; fats, oils, and related components; food values of fresh fish vs. processed fishery products; minerals and vitamins in fish; incidence of malnutrition, by regions; fish in dietetics, including geriatric diets; utilization of fish flour; fish proteins and their importance in preventing malnutrition; economic and social incentives for increasing production; and methods of consumer education.

The Bureau of Commercial Fisheries of the U. S. Department of the Interior is working actively with interested groups in the U. S. to complete recommendations for FAO regarding the final program.

New USDA Inspection Service. Mince meat, canned pork and beans, meat sandwiches—frozen or fresh, commercially prepared — bouillon cubes, and certain other food items containing meat or meat products may now be inspected for wholesomeness and labeled with the meat inspection marks of the USDA. This new program is strictly voluntary on the part of the manufacturers, who will reimburse the federal government for the service. Food articles to be inspected under the new service are not classified as meat products, although they contain small amounts of meat or have an ingredient that is a meat derivative.

Government Publications. *Meat Consumption Trends and Patterns* is the title of the USDA's new Agriculture Handbook No. 187 by Gertrude Gronbech. Five sections cover: (a) historical trends in meat consumption and related economic changes; (b) variations in household meat consumption by region, urbanization, and income as revealed by surveys; (c) analysis of the regional structure of the U. S. market for meat based on household survey data; (d) information on meat consumption outside private homes; and (e) implications for future changes in meat consumption. Tables and appendices provide data and technical information. For the consumer, meat ranks high in terms of food expenditures, preferences, and nutritive content. A fourth of food budgets is spent for meat. Per capita meat consumption today is about the same as fifty years ago, but much higher than in the mid-thirties. Copies of this report may be ordered from the Government Printing Office, Washington 25, D. C., for 40 cents each.

A leaflet, "Know Your Butter Grades," has been put out by the USDA as Marketing Bulletin No. 12. The three grade shields used by the USDA are pictured and defined. Single copies may be requested from the USDA Office of Information, Washington 25, D. C.

Other Booklets. *That No Man Shall Hunger!* is the title of a pamphlet by Maxwell S. Stewart published as No. 304 in the Public Affairs Pamphlet Series. The world-wide Freedom-from-Hunger campaign, launched in July and designed to meet the challenge in the title is the theme of this booklet. It touches on the population explosion; the Food and Agriculture Organization of the United Nations and its programs of information, international consultation, and technical assistance; methods to improve crops and stocks and the use of land; nutrition education; increasing fish production; and so on. Copies of this booklet may be ordered for 25 cents each from: Public Affairs Committee, Inc., 22 East 38th Street, New York 16.

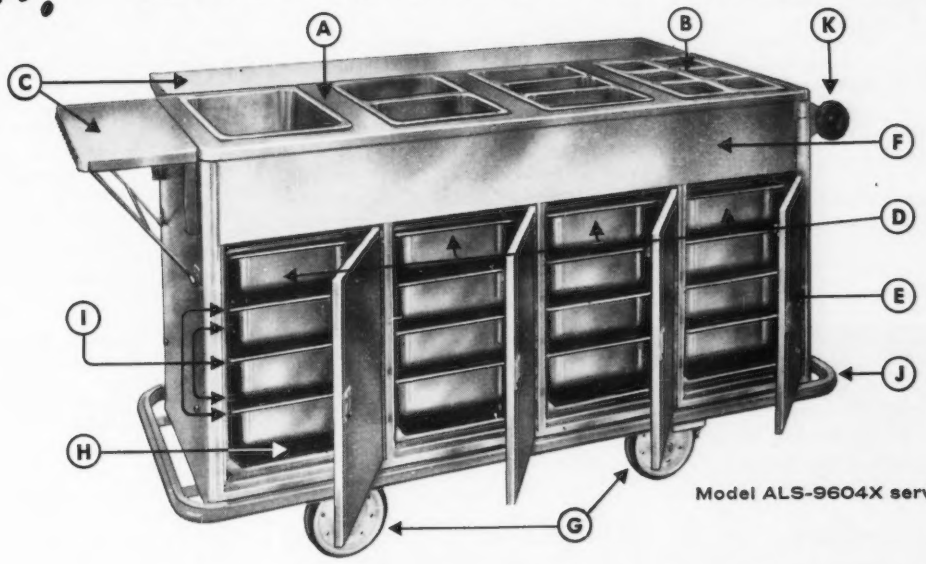
As a public relations effort, the Super Market Institute has reprinted in booklet form excerpts from the proceedings of its 23rd annual convention. Titled "The Good in Your Food," it emphasizes the wholesomeness of the American food supply. Comments from the following distinguished speakers are included: Dr. Detlev W. Bron, Dr. Charles Glen King, Dr. M. R. Clarkson, Dr. Herrell DeGraff, George P. Larrick, and Dr. Fredrick J. Stare. The common theme of these men is that America can be proud of its food supply and that statements which undermine people's faith in its quality are unfounded. Copies may be requested from: Super Market Institute, 500 North Dearborn Street, Chicago 10.

Food Costs. Large families have often expected to save on food bills by buying in quantity and by having less food waste and spoilage. USDA home economists figure that today, it costs 5 per cent less per person to feed a family of five than four, and 10 per cent less per person to feed six. On the other hand, food costs per person are 5 per cent higher in a family of three and 10 per cent higher for two, than in a four-person family. Survey data are not complete for people living alone or in families of seven or more, but it is estimated that food costs per person for someone living alone are at least 15 per cent higher than if they lived in a family of four.

These estimates represent costs for providing a nutritious diet on the USDA's low, moderate, and liberal-cost food budgets.

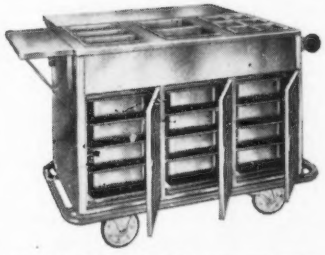
Cranberry Sirup. A new product, cranberry table sirup, is making its debut in Massachusetts this year. 4-H Club boys and girls will introduce the product, which has been packed exclusively for them by cooperative grower-processors. The sirup is brilliant red and is said to be "not too tart and not too sweet." It may be used on pancakes or waffles, grapefruit or other fruit, ice cream, cake, or other desserts. If the new product succeeds in Massachusetts, consumers may expect it on markets elsewhere in the future.

New! **Institutional Bulk Feeder Serves up to 300 Meals per Load!**



Model ALS-9604X serves 300

Check these features...each gives you important benefits!



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Model ALS-4802X serves 125

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F TOP DECK HEATED WITH HI-FLO THERMOSTATICALLY CONTROLLED HEATERS for quicker, more uniform heating.

G FOUR STAINLESS STEEL RUBBER TIRED, BALL-BEARING EQUIPPED 8" CASTERS (2 stationary and 2 swivel-type)—provide quiet, easy maneuverability, and maximum durability.

H EXCLUSIVE BLICKMAN COVED CORNER CONSTRUCTION THROUGHOUT—provides a smooth coved interior surface for easy cleaning.

I STURDY REMOVABLE STAINLESS STEEL PAN RACKS. Racks come out easily (no tools) leaving smooth interior for quick, easy cleaning. Pan slides are set to accommodate up to 6" deep pans.*

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K STAINLESS STEEL PUSH HANDLES mounted on stainless steel brackets, and protected by large donut type rubber bumpers—gives greater impact protection. Will not mar walls.

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FOOD SERVICE EQUIPMENT

News of State Associations

Colorado Dietetic Association. November 12 was the date of the fall meeting of the Colorado Dietetic Association held in Colorado Springs. Special features of the program included:

"How Are Your Inter-Departmental Relations?"—Leora Dick, Assistant Nursing Supervisor, Colorado State Hospital, Pueblo

"The Latest in Diabetic Care"—Robert Smith, M.D., Colorado Springs Medical Center

"What Do You Know about the White House Conference?"—a panel discussion.

A report of delegates to the 42nd Annual Meeting of A.D.A. was made by Mary Ellen Johnson and Dorothy Scott.

Georgia Dietetic Association. In September, the *Atlanta Dietetic Association* enjoyed a tour of the new Food Service Center of Emory University. In October, Atlanta dietitians heard a talk on "The Dietitian's Role in Civil Defense—Local Plans" by Mrs. Gene Goslee, Atlanta Civil Defense office. Officers of the Atlanta group for the coming year are: President, Amelia Riley, VA Hospital; President-Elect, Charlotte Jackson, Emory School of Nursing; and Secretary-Treasurer, Elizabeth Carlton, Grady Memorial Hospital.

New York State Dietetic Association. The Food Administration Committee of the *Long Island Dietetic Association* met during the summer to complete plans for a pilot course for in-service training of food service supervisors. The course will be available to employees at the five hospitals represented by the committee members: Huntington Hospital, Huntington; South Nassau Communities Hospital, Oceanside; Mercy Hospital, Rockville Centre; Mid-Island Hospital, Bethpage; and the Community Hospital, Glen Cove.

Oregon Dietetic Association. On November 18 and 19, a Tri-State Dietetic Conference, sponsored jointly by the Oregon, Washington, and Idaho Dietetic Associations, was presented in Portland. The program included:

"Dietitians' Plus"—Jennie I. Rowntree, Ph.D., Professor Emeritus, University of Washington Seattle

"Food Service Management"—Leo D. Dardarian, Mannings, Inc., San Francisco

"Geriatrics" — Dr. Robert Heilman, Director, Section on Chronic Care, Oregon Board of Health, Portland

"Bland and Low-Residue Diets"—Dr. John Benson, University of Oregon Medical Hospital, Portland

"Space Feeding and Its Problems"—Beatrice Finkelstein, Chief, Food Technology Section of Aero Space, Medical Division, Wright-Patterson Research and Development Center, Dayton

Share and compare sessions on: labor control, teaching student nurses, food service supervisors, only dietitians, developing and writing a diet manual, diet therapy trends, controlling costs other than labor, communications, homemakers keeping well informed, public health nutrition consultants in community programs, college food service, and school lunch

"Food Misinformation" — Adelia M. Beeuwkes, A.D.A. President-Elect

"What We Should Know and Do about New Amendments to the Food and Drug Act"—Kenneth M. Monfore, Director, Seattle District, Food and Drug Administration

"Personnel Relations"—Verl J. Byron, General Electric Company, Richland, Washington

Miss Beeuwkes represented the national Association at this meeting.

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REVERE SHAPE
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Career Guidance in the States

Material for this section has been condensed from the bulletins of the state dietetic associations and from reports made to the Career Guidance Chair-

History of The American Dietetic Association

1917-1959

Mary I. Barber, Editor

This is the first official history of the ADA from its inception in 1917 through 1959. More than being merely a record of the Association, its origin, structure, aims and accomplishments, this new book includes the many personalities that represent its leadership and explores the role of the dietitian from ancient times to the Space Age.

Chapter 1 considers the term "dietitian" historically, and presents a definition which describes the dietitian's responsibilities today. Chapter 2 outlines the history of dietetics from the ancient Ebers papyrus to the present, highlighting the achievements of great figures in the history of nutrition.

Chapter 3 gives an interesting account of the founding of the ADA. Chapters 4 through 7 record by decades the spectacular advances both of the ADA and of the science in general. Chapters 8 through 14 describe the structure of the Association, and the work of the various Committees and Sections devoted to education, community nutrition, diet therapy, etc.

Chapters 15 through 19 cover the history of dietitians in military and government service, the United States Children's Bureau and the role of the Journal of the ADA and the Association's Public Relations Department. Chapter 20 relates the challenging aspects of dietetics in the Space Age.

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man of A.D.A. It is hoped that this feature will arouse interest of more members in participating in the program, and even promote friendly rivalry between state associations to increase the scope and number of activities reported. IMPORTANT: *If you want to be included in this section, you* must *furnish us with information.*

Alabama. Blotters, printed with career guidance information, an appealing line sketch of a dietitian, and the address to which to send for free details, are used as recruiting materials in the schools. These are distributed after talks and in daily classes, thus serving continually to remind students of "Your Career in Dietetics."

Connecticut. This state has a stamp, reading "Explore Careers in Dietetics" to be imprinted on envelopes of all association correspondence . . . In recognition of the fact that career guidance activities must be continuing if lasting results—not just momentary interests—are to be obtained, a committee has been assigned the specific duty of following up last year's contacts . . . Career guidance material has been furnished for inclusion in PTA and Women's Medical Auxiliary kits for state-wide distribution.

"Little need for therapy since the nurses started serving that good Continental Coffee!"

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ROASTING PLANTS FROM COAST TO COAST

District of Columbia. Along with showing *View from the Mountain*, D.C. dietitians have sponsored an essay contest open to all students viewing the film. The winners of the three cash prizes have all been invited to spend a day at a hospital as guests of the dietitians.

Hawaii. Exhibits at the Home Economics convention, Home Demonstration convention, in the public library, and in school science fairs are attracting much enthusiasm from students and interest from people in the community. Benefits of joint projects with other allied groups are thus being reaped.

Kansas. The Dietary Department of the University of Kansas Medical Center has played hostess to 562 students from colleges, high and junior high schools, as well as more than 100 Girl Scouts. Booklet handouts and the opportunity to ask questions are provided with the tours.

Michigan. The Flint Dietetic Association was one of thirty-five organizations to have a booth at the three-day Career Carnival for high school students which was attended by some 8500 students. The objectives of the program were: (a) to give youth accurate information on career opportunities available to them; (b) to allow them the opportunity of consulting with persons actually practicing the profession; (c) to stimulate them to think about future vocations; and (d) to dispense information regarding good nutrition.

New Jersey. Funds contributed by life members of the New Jersey Association have been used to purchase fifteen prints of *View from the Mountain.* This has made it possible to show the film to more than 105,000 persons since November 1958 . . . To coordinate activities within the state, a manual has been developed for the use of local career guidance chairmen. It contains: (a) duties of the local chairman and expense account form; (b) map of the area to be covered and a list of schools in the area; (c) a sample letter for sending to schools, together with the poster, "You Are Equipped for Many Careers" and the leaflet about the film, *View from the Mountain;* (d) an outline of a career guidance talk and the list of academic requirements for membership in A.D.A.; (e) a chart for recording contacts and a sample of a report to be sent to the state career guidance chairman; and (f) a suggested list of references and the use to be made of each.

Pennsylvania. Many hospitals offer summer employment to college home economics students, which includes an opportunity to undertake supervisory and professional duties after a period of orientation and training. Some hospitals provide year-round part-time

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3rd edition by Dorothea F. Turner

DEVELOPED FOR THE AMERICAN DIETETIC ASSOCIATION

- Descriptions of therapeutic diets
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- New tables on food composition
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The handbook includes new chapters on diet during pregnancy, adolescence, and old age; on energy expenditure; on fatty acid modifications; and on phenylalanine restrictions.

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work in the dietary department for high school students as well as college students, thus affording an opportunity for an early decision on "Dietetics as a Career."

Indiana, Kentucky, and Oregon have turned over their copies of *View from the Mountain*, or obtained an additional copy, to their state Department of Health or Education. (For those states unable to arrange sufficient bookings to make full use of their copy of the film, we suggest this workable and effective solution. Don't forget, however, your continuing responsibility for and the importance of furnishing qualified "experts" to follow up showings with personal contacts.)

News of Products and Services

For low-sodium diets, *Adolph's Ltd.*, is offering three new products: Adolph's Seasoned Salt, Garlic and Onion Salt Substitutes. Each contains less than 20 mg. sodium per 100 gm. The potassium content (potassium chloride and monopotassium glutamate) is a benefit when further sodium restriction is needed. The new salt substitutes are said to enhance natural food flavors, impart distinctive flavors, and retain their potency in cooking. They are available in sprinkle-top shaker jars for both table and kitchen use.

Aatell & Jones, Inc., has a new place mat featuring famous American food dishes. Four interesting items about early American food are illustrated. The mat is 9½ by 14¼ in. on white paper with scalloped edges.

Borden's Cream Cheese with Clam and Lobster is a new item in *The Borden Company* line. Comprised of cream cheese flavored with clam juice and containing minced clam and lobster meat, it may be used as a sandwich and cracker spread—or, combined with cream, milk, or French dressing, it is suitable for a party dip, salad dressing, or topping for hot, cooked vegetables. It may also be used as a sauce with fish, shrimp, or lobster. The product is packaged in a 5-oz. plastic dish with a snap-on lid.

Borden's Whipped Cream Cheese is also new. Consisting of natural flavored cream cheese whipped to a smooth consistency, it contains not less than 33 per cent milk fat and not more than 55 per cent moisture. With or without additional flavorings, it is usable as a topping for baked potatoes and other vegetables, fruits, desserts, and pancakes, or as a garnish for clear soups. It may be used as a sandwich spread, a dip, or salad dressings.

A fifteen-page illustrated booklet, "Outdoor Barbecuing for a Crowd—Lamb Recipes to Serve Twenty-Five or More," from the *American Lamb Council* is a comprehensive outline of the equipment, fuel, cuts of meat, and method of cooking to be used for best results. Interesting tips on how to convert oil drums or wheelbarrows into grills, how to build a fire, methods of testing temperatures, controlling flaring, and the special technique of using frozen meat for barbecuing are given. A chart of the cuts of lamb, diagrams of pit barbecuing of whole lamb, and a barbecue chart for large quantity cooking (3000 persons) with recipes for all cuts and methods of cooking are included.

Emphasis on rigid alignment of operating parts to provide slicing accuracy, with particular attention to ease of cleaning and sharpening of knife, is a feature of a new slicer, Model 5401, from *Toledo Scale Corporation*. Rapid disassembly without the use of tools is accomplished by swinging the hinged slice deflector out of the way and removing the crumb container. A quarter-turn of the food carriage knob provides easy removal of the carriage and the center plate is disengaged by turning the release knob. The knife sharpener is mounted atop the blade to facilitate sharpening. The slicer is gravity fed. The gauge setting has forty slice thicknesses up to ⅞ in. The 12-in. nickel crome-plated, high-carbon steel knife is gear driven. The unit, powered with a ¼-h.p. motor, has a height of 19½

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Phone: FAirfax 1-7600
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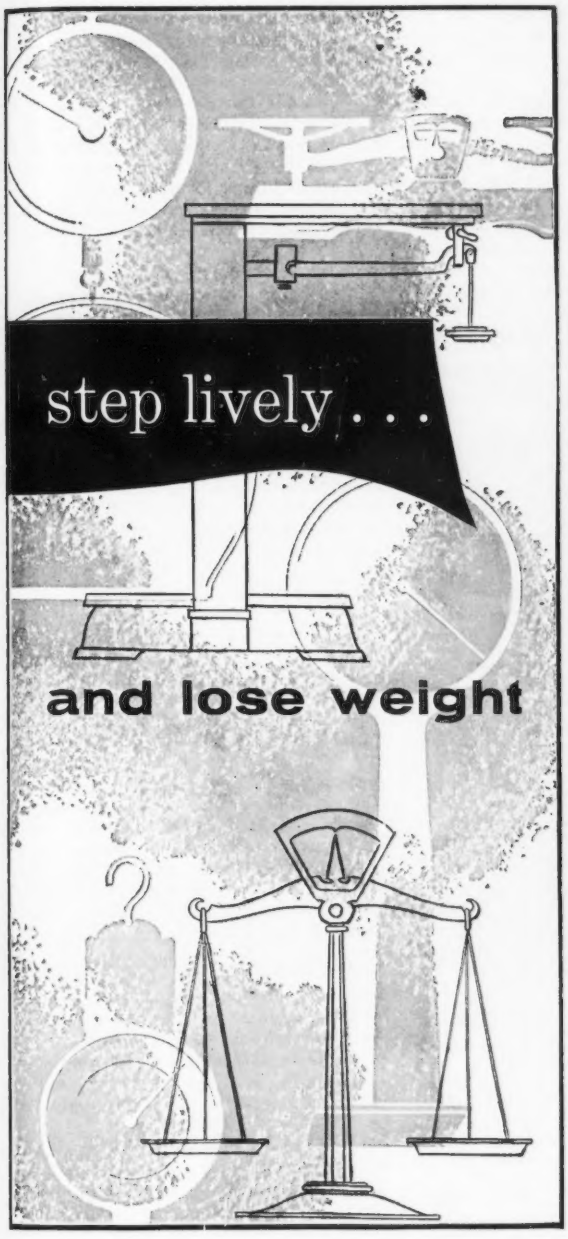
346 Rose Avenue • Venice, California
Phone: Exbrook 6-3165



Step lively . . . . . is designed to give weight reduction patterns which will bring pleasing results, satisfy hunger and supply energy to meet the demands of everyday living. It is ideal for use with all persons seeking guidance in weight reduction. Very reasonably priced at 3 cents per copy, $1.25 for 50 copies and $2.00 per 100 lot orders.

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"If any Safedge® glassware becomes chipped on the rim from *any cause whatsoever,* it will be replaced free of cost."

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Durability is but one of the many reasons why Libbey Safedge glassware continues to be the choice of institutions across the country. The wide selection of patterns, full range of sizes, colorful cresting, immediate availability from one reliable source—all add up to why *Libbey* is your best buy.

For full information on how this durable and attractive glassware can serve *your* needs, see your Libbey Supply Dealer, or write Libbey Glass, Division of Owens-Illinois, Toledo 1, Ohio.

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in., length of 26 in., and width of 20½ in. Three finishes are available.

To prove superiority in durability, ease of cleaning, and heat conductivity, *Legion Utensils Co., Inc.*, is now featuring a money-back, ninety-day trial offer on its three-ply stainless steel cooking utensils.

Two mobile beverage Caddy models, one with a dropped drain for pitcher filling and one with a flush-type drain, are available from the *Caddy Corporation of America*. The drain trough is removable for cleaning. Approximately 34 by 22 in., both models are of welded stainless steel construction, gliding smoothly on ball-bearing swivel casters, two of which are equipped with foot brakes.

A new 10-oz. Thermo-Serv for individual serving of coffee, tea, hot chocolate, sirups, and other liquid foods has been announced by *Service Ideas, Inc.* Built-in triple insulation keeps all liquids hot, or cold; the wide opening top and flip-top lid make it easy to clean with no glass to break. It stacks for easy storage. Stain-resistant, it withstands boiling water and all washing products. The server is available in copper or turquoise with a black trim. Also, a new 3-oz. creamer of stainless steel is designed with no handle and a spout for greater ease of pouring and to conserve table space.

Standard Brands is introducing Fleischmann's Sweet (Unsalted) Margarine made from 100 per cent corn oil. The product is a companion to the lightly salted Fleischmann's Corn-Oil Margarine introduced last year. The new margarine is available in 1-lb. packages containing four quarters. Frozen immediately after production and held frozen until ready to use, the product is adaptable for institutional use. When thawed, the margarine is served as any other spread. Sodium content is 10 mg. per 100 gm. One pat contains less than 1 mg.

Two new, large-capacity, four-stage dishwashers have been introduced by *The Hobart Manufacturing Company*. The Model FT-18 flight-type unit features a 6-ft. center section for washing and rinsing operations, a 6-ft. loading and scrapping section, and a 6-ft. drying and unloading extension. The flight-link conveyor which moves at an adjustable 5 to 7 ft. a minute is constructed of stainless steel with Delrin acetal resin links providing the toughness and durability once found only in metals. Stainless steel links are also available. The unit is recommended for food operations serving up to 1350 persons per meal. The other machine, Model RM-86 Rack-O-Matic, is a multiple-tank circular dishwashing system. Designed to make the best use of limited kitchen space. It requires only 13½ by 6 ft. of floor space and is also recommended for volume feeding up to 1350 persons per meal. The unit has a 22-in. recirculating dish scraper and 64-in. section where dishes are washed and rinsed. A circular stainless steel conveyor system with adjustable speed of 4 to 6.6 ft. per minute is another feature. Optional equipment includes a built-in food waste disposer and loading shelf for racking of dishes. The tray rest automatically stops the conveyor when trays or dishes are placed on it and starts when dishes are removed. Both units are of stainless steel construction.

All-Stars, a sugar toasted star-shaped oat cereal, has been announced by *Kellogg Company*. Ready to eat with milk as breakfast cereal or right out of the package as a snack, All-Stars are a source of thiamine, riboflavin, niacin, phosphorus, and iron. Each 1-oz. serving contains 110 calories. Three suggested recipes use All-Stars in butter crunch ice cream, brown sugar cookies, and chocolate drops.

In October, the *Best Foods Division of Corn Products Company* introduced its new Mazola Margarine, the major ingredient of which is corn oil in liquid form, unchanged and non-hydrogenated. The corn oil is held in suspension in a matrix of partially hardened fat, a technique which preserves for the corn oil the advantages of its high linoleic acid content.

Granulated onion and garlic have been added to the Allied Food line of *Continental Coffee Company*. Packaged in glass jars with plastic shaker tops, the salts may be sprinkled and do not lump in hot weather. The onion shaker contains 10 oz.; the garlic shaker holds 12 oz.

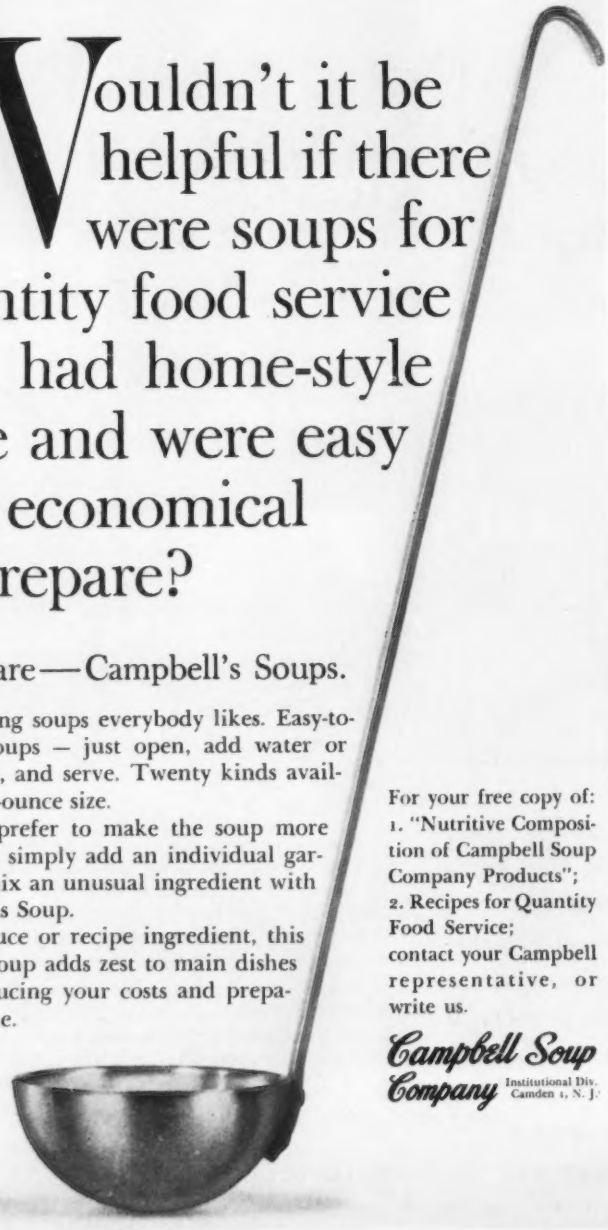
Wouldn't it be helpful if there were soups for quantity food service that had home-style taste and were easy and economical to prepare?

There are—Campbell's Soups.

Good-tasting soups everybody likes. Easy-to-prepare soups — just open, add water or milk, heat, and serve. Twenty kinds available in 50-ounce size.

If you prefer to make the soup more your own, simply add an individual garnish, or mix an unusual ingredient with Campbell's Soup.

As a sauce or recipe ingredient, this versatile soup adds zest to main dishes while reducing your costs and preparation time.



For your free copy of:
1. "Nutritive Composition of Campbell Soup Company Products";
2. Recipes for Quantity Food Service;
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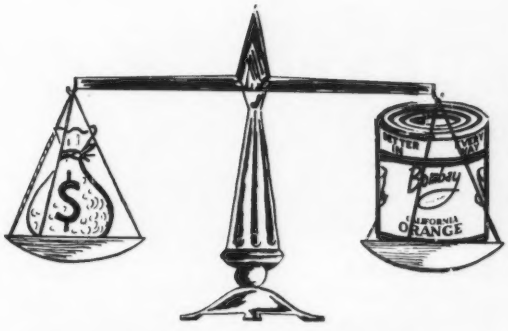

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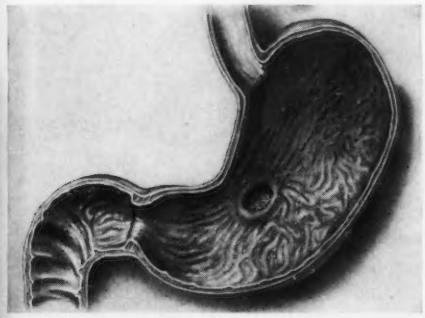

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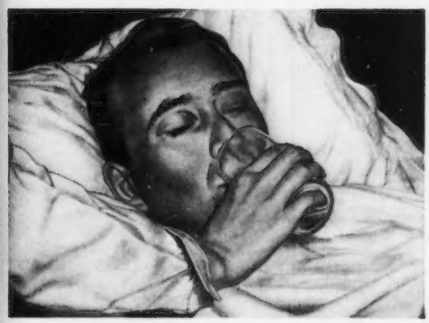

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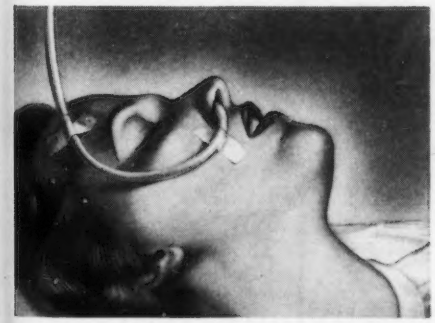

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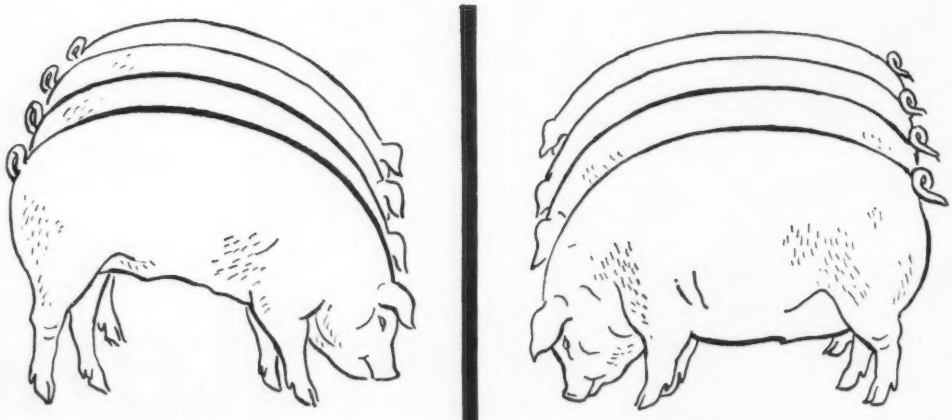


MEAT TYPE

FAT TYPE

A Great Advance in Animal Agriculture!

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO • MEMBERS THROUGHOUT THE NATION

New easy way to plan menus where cholesterol control is a problem

Free guide to tempting healthful recipes and menus using polyunsaturated corn oil

Here are authoritative, up-to-date diets and recipes to help guide you where serum cholesterol control is indicated for patients under your care.

"Cooking for Health with Mazola Corn Oil" is the work of Corn Products Company nutritionists and draws upon the latest dietary concepts. It clearly explains the relationship of our diets to the control of blood cholesterol levels. The book lists in simple table form the caloric values of most common foods and the quantities of *saturated vs. polyunsaturated fats* (low linoleic vs. high linoleic) they contain. Suggested menus and tempting recipes make wholesome and healthful meal planning pleasant and simple.

For your copy of this comprehensive new menu and cook book, fill in the coupon below. We will also include order cards whereby individuals whom you are counselling may send for their copy at your suggestion.

How Mazola® Corn Oil May Help in Dietary Control of Hypercholesterolemia

Sensible precautions recommended by many leading nutritionists are: 1) control of total caloric intake to avoid obesity, 2) limitation of total fat intake to about ⅓ of the total calories, and 3) selection of foods so that about ⅓ to ½ of the fat is polyunsaturated.

In the simplest terms, these suggestions mean use of a polyunsaturated vegetable oil such as Mazola Pure Corn Oil in place of more saturated dietary fats. Mazola Corn Oil contains a high percentage of linoleates. Thus, where dietary control of serum cholesterol is indicated, Mazola Corn Oil is second to none among the leading oils in recognized effectiveness. It is readily available at standard prices, instantly acceptable by the user.

This diet modification has the added advantage that it is adaptable to family eating habits. All members, including the hypercholesterolemia patient, can enjoy the same food. Thus food preparation is simplified and patient morale is improved.

KEY FACTS ABOUT MAZOLA CORN OIL

MAZOLA Corn Oil has the following average composition

	% by weight	Grams/ tablespoon
Glycerides of Fatty Acids		
Unsaturates, Total	85 (82-87)	11
Linoleates	54 (52-56)	7
Saturates, Total	11 (9-12)	1.4
Natural Sitosterols	1 (0.9-1.3)	0.14
Natural Tocopherols	about 0.1	0.015
Cholesterol	None	None
Salt (Sodium chloride)	None	None
Calories		125

CORN PRODUCTS COMPANY
9 East 55th Street
New York 22, New York

Please send me a copy of "Cooking For Health With Mazola Corn Oil," and a supply of order cards for use in my work.

Name_____

Address_____

City_____

Zone_____ State_____

OF ALL LEADING BRANDS, ONLY MAZOLA IS CORN OIL!

Fewer calories same nutrients for woman 65 years

For the maintenance of health and well-being the recommended daily dietary allowances for "Women, 65 years," is lower in calories, yet is the same in essential nutrients as for younger age groups. A moderate reduction in dietary fat reduces the total calories. For those advising women in this age group about their diet, *a basic cereal and milk breakfast* as shown in the chart below merits consideration. Its fat content of 10.9 gm. provides 20 per cent of the total calories. *Thus it is a moderate low-fat breakfast.* As shown in the chart below, it provides for "Women, 65 years," and for younger age groups about one-fourth of the recommended daily dietary allowances of protein, important B vitamins, and essential minerals. The Iowa Breakfast Studies demonstrated that *a well-balanced, moderate low-fat basic cereal and milk breakfast was nutritionally efficient for the young and old alike.*

Recommended Daily Dietary Allowances and the Nutritional Contribution of a Basic Cereal and Milk Moderate Low-Fat Breakfast*

Menu: Orange Juice—4 oz.;
Cereal, dry weight—1 oz.;
Whole Milk—4 oz.; Sugar—1 teaspoon;
Toast (white, enriched)—2 slices;
Butter—5 gm. (about 1 teaspoon);
Nonfat Milk—8 oz.

Nutrients	Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin equiv.	Ascorbic Acid
Totals supplied by Basic Breakfast	503	20.9 gm.	0.532 gm.	2.7 mg.	588 I.U.	0.46 mg.	0.80 mg.	7.36 mg.	65.5 mg.
Recommended Dietary Allowances—Women, 65 Years (58 kg.—128 lb.)	1800	58 gm.	0.8 gm.	12 mg.	5000 I.U.	1.0 mg.	1.5 mg.	17 mg.	70 mg.
Percentage Contributed by Basic Breakfast	27.9%	36.0%	66.5%	22.5%	11.8%	46.0%	53.3%	43.3%	93.6%

Cereal Institute, Inc.: Breakfast Source Book. Chicago: Cereal Institute, Inc., 1959.
Food & Nutrition Bd.: Recommended Dietary Allowances, Revised 1958. Natl. Acad. Sci.—Natl. Research Council Publication 589, 1958.
Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

**The allowance levels are intended to cover individual variations among most normal persons as they live in the United States under usual environmental stresses. Calorie allowances apply to individuals usually engaged in moderate physical activity. For office workers or others in sedentary occupations they are excessive. Adjustments must be made for variations in body size, age, physical activity, and environmental temperature.*

CEREAL INSTITUTE, INC.
135 South La Salle Street, Chicago 3
A research and educational endeavor devoted to the betterment of national nutrition

New Ideal UNITRAY

Hot foods Hot . . Cold foods Cold

. . . ALL ON THE SAME TRAY

The Unitray Concept — the newest, most modern method for centralized food service in hospitals was developed in conjunction with Mr. Henry Rothman, F.F.E.S., one of the nation's leading food service consultants.

Now, for the first time, you can have *all* of the advantages offered by "All on the same tray" service. No longer do you have to worry about the proper combining of hot foods onto the cold tray at a point distant from the kitchen.

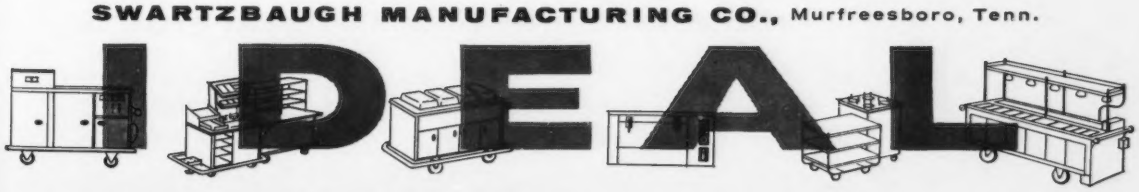
IDEAL'S "All on the same tray" Unitray cart makes complete kitchen control of the centralized food service system possible.

A unique new method permits one side of the tray to be exposed to refrigeration while the other-side of the tray is exposed to heat. Thus, hot foods stay hot and cold foods stay cold — all the time.

Now, the tray can be completely assembled in the main kitchen. The complete tray set up is checked by the Dietitian just before the tray is put into its proper place in the cart. No reshuffling of tray items before delivery to patient. One set up — one check, and the tray is ready for delivery to the patient. Excellent holdover qualities built into the cart make it possible to maintain both hot and cold temperatures, even over long periods of time. Twenty trays in less space than ever before! The new Unitray carries 20 trays with plenty of room for a 10 ounce glass to stand upright on the tray. Yet, the overall length of the cart is only 53¾" almost ⅓ less than old fashioned carts.

Write today for live demonstration of Unitray in your hospital

SWARTZBAUGH MANUFACTURING CO., Murfreesboro, Tenn.



INSTITUTIONAL EQUIPMENT • for modern institutions everywhere

KEEP FAITH WITH NATURE—GUARD HER GOODNESS

Beta CAROTENE

'NATURE'S YELLOW'

the Versatile Color

RECOGNIZED
SAFE AS A NUTRIENT—SAFE AS A COLOR

ACTIVITY	*Beta CAROTENE is the Color that Nourishes. Its vitamin A activity is 1,666,666 U.S.P. units per gram.*
+ **AVAILABILITY**	Six practical, convenient forms for every food use.
+ **MISCIBILITY**	In either water-base or oil-base foods.
+ **POTENCY**	Greater color values that count, from a small amount.
+ **PURITY**	Virtually 100% pure. Free from useless extractives or residues.
+ **QUALITY**	Achieved by meeting the most exacting specifications.
+ **SAFETY**	Recognized safe as a nutrient. Accepted in U.S.A. and many other countries.
+ **UNIFORMITY**	Standardized, unchanging, true color, lot after lot. No tinge of green or red.
+ **UTILITY**	Recommended for foods and beverages requiring yellow to orange color.

Add up to *versatility* for Beta CAROTENE
the Color that Nourishes

USE IT FOR
Margarine • Shortening
Salad and Cooking Oils
Mellorine & Ice Cream Products
Pie Crust & Cake Mixes
Baked Goods • Frozen Foods
Fruit Drinks, Fruit Juices & Concentrates
Puddings & Egg Yolk Products
Gelatine Desserts • Confections
Dessert Toppings • Popcorn
Cheese • Soups • Creamed Foods

Send for samples and technical literature.

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Vitamins come RIGHT from Roche®

FINE CHEMICALS DIVISION **HOFFMANN-LA ROCHE INC.**
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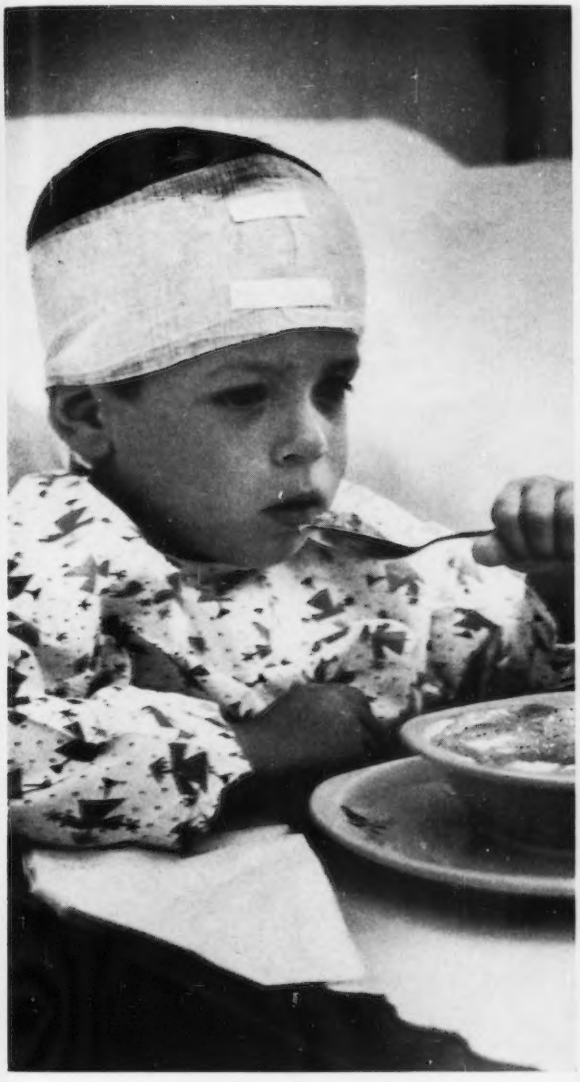


Age 2 or 72, patients thrive because . . .

they like double-flavored Malt-o-Meal

No matter the age, from 2 to 72, patients thrive on Malt-o-Meal. Instead of just "picking at" tasteless foods, they enjoy solid nourishment. There's real appetite appeal in the flavor—*the double flavor*—of Malt-o-Meal: sun ripened wheat and toasted malt. Never gummy—has good "mouth feel." Just what the doctor ordered for bland diets, too. And it's downright wonderful eating for both young and old.

REMEMBER THIS ABOUT MALT-O-MEAL

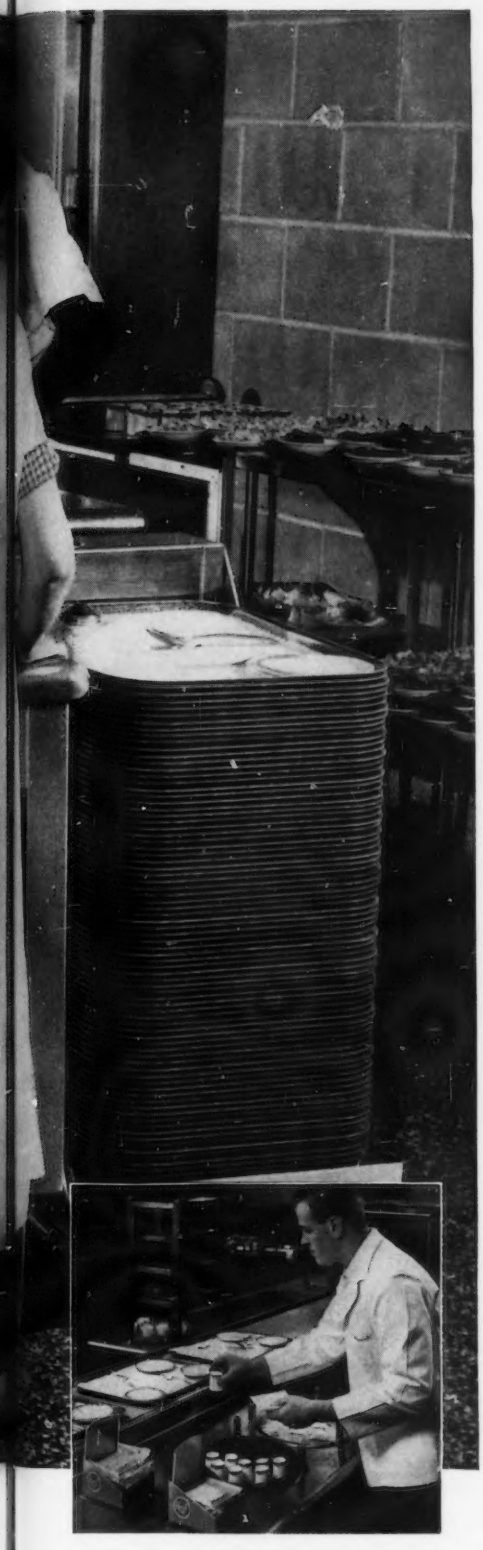
- No sodium added. Natural content 3 mg. per 100 gms.
- Low-Fiber Content (½%) truly non-irritating, chemically and mechanically.
- Easily digestible.
- Fortified with B complex vitamins and iron.
- Free of non-nutritional additives.
- Added wheat gluten gives higher protein content.

When ordering cereal . . . order Malt-o-Meal enriched wheat cereal

(MEETS FEDERAL SPECIFICATION FOR ENRICHED WHEAT CEREAL)

Lowerator Dispensers on both sides of the line help load trays *smoothly* and *fast* by insuring arrival of a planned quantity of dishes from the washer and placing every dish at the server's fingertips. Bread dispensers and refrigerated butter and creamer units (inset) add to efficiency.

Simplify . . . speed . . . save with



This is the tray assembly line in a hospital. The problem it solves is *basically* similar to yours...

SERVING FOOD SMOOTHLY ...AND FAST

Prepared food, dishes, glasses and silver for hundreds of diners are all assembled on trays in a small area. Helping to make this complex task efficient are mobile, AMF Lowerator Dispensers. They are positioned where needed, automatically dispense planned quantities of dishes at convenient working level.

Proved by 500,000 units in daily use

Today more than half a million Lowerator Dispensers are in constant use in all types of food service establishments. The AMF Lowerator System earned this universal acceptance because it is the efficient method of clean dish handling... every unit gives the ultimate in performance.

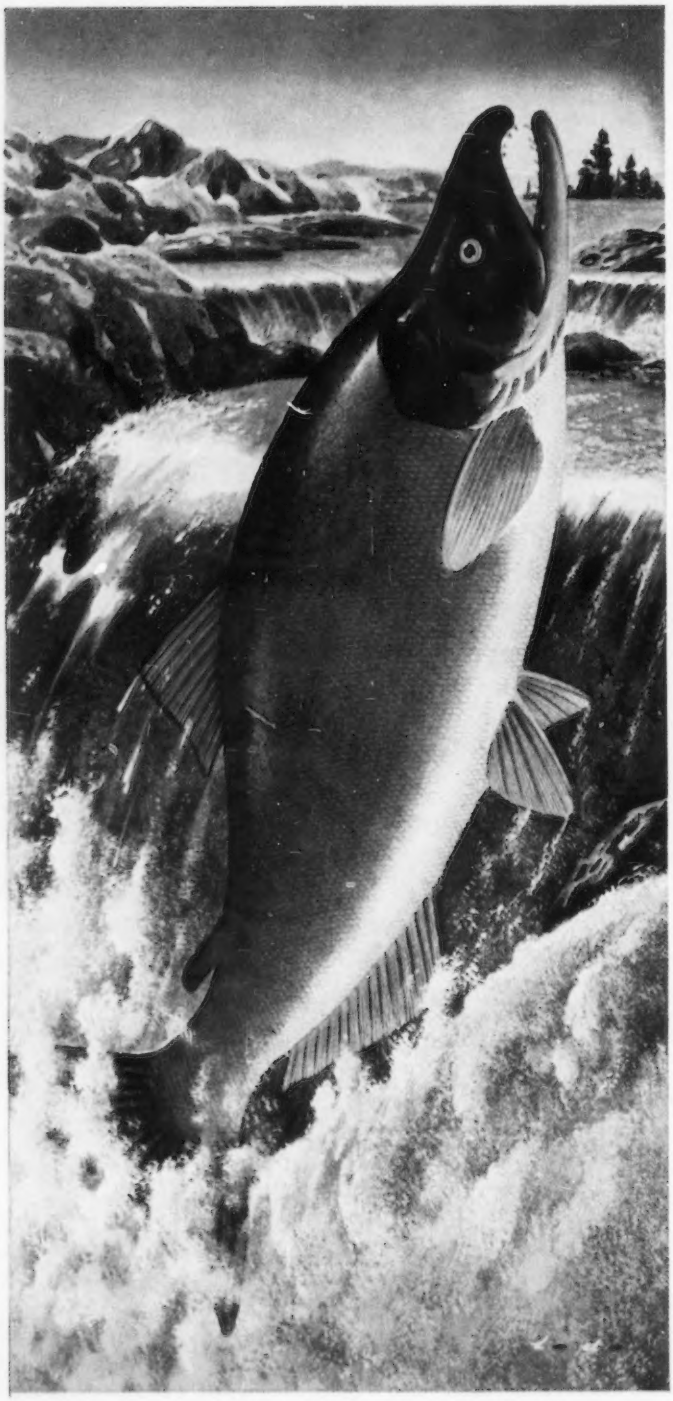
These important features guarantee lasting satisfaction: Type 302 stainless steel springs and dispenser tubes in heavy gauge, seamless, heliarc welded cabinets; positive, tamper-proof dispensing levels; U.L.-approved heating systems and N.S.F. approval.

The Lowerator System for clean dish handling can make almost every kind of mass feeding operation more efficient. See your Food Service Equipment Dealer or write: LOWERATOR DIVISION, American Machine & Foundry Company, AMF Building, 261 Madison Avenue, New York 16, N. Y.

Model CH-SS—electrically heated, thermostatically controlled, mobile unit for dispensing cups, coffee or tea pots.

*LOWERATOR is a registered AMF trademark for the original, proven self-leveling dispenser.

AMF LOWERATOR*



Painted especially for Sexton by Tom Dolan, scientist, author and famous illustrator of wildlife.

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Sexton
Quality Foods

Finest
Red Sockeye
Sexton
Salmon

Prize catches from cold northern waters... packed fresh for you by Sexton

Here's salmon at its most perfect ... freshly caught, carefully cleaned and hand packed. Distinctively delicious whether you serve it hot or cold, or in salads and sandwiches.

● In addition to salmon, Sexton offers a wide variety of other types of fish from all parts of the world. All are of highest quality and finest flavor.

Available in a full range of sizes from individual-portion cans up to the economical 4-lb. can.

NEW appetizing GEVRAL® Protein

VITAMIN-MINERAL-PROTEIN SUPPLEMENT LEDERLE

Recipes

Tomato Rarebit

(4 servings)

2 cups (½ lb.) grated Cheddar cheese
1–10½ oz. can condensed tomato soup
3 tbs. water • ½ tsp. salt
Few grains cayenne (optional) • 2 tbs. GEVRAL Protein

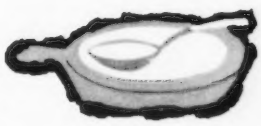
Combine ingredients, heat, stir frequently until cheese melts. Serve on toast or crackers.

Stuffed Baked Potato

(makes 4)

4 baked potatoes (3½" diameter) • 2 tbs. butter
2 tbs. grated onion (optional) • 2 tbs. hot milk
½ tsp. salt • ¼ tsp. paprika • 2 egg whites
½ cup (¼ lb.) grated Cheddar • 2 tbs. GEVRAL Protein

Cut hot potatoes and scoop out halves; mash thoroughly with GEVRAL Protein. Sauté onion in butter and add to pulp with milk, salt, paprika. Beat smooth. Beat egg whites stiff and fold in. Fill potato shells, sprinkle with grated cheese and broil slowly till cheese melts.



Cream Soup

(4 cupfuls)

2 tbs. butter or oleomargarine • 1 tbs. minced onion
1½ tsp. flour • ¼ tsp. salt • ⅛ tsp. paprika
1 cup milk • 1 cup bouillon or vegetable water
1 cup puréed vegetable • 2 tbs. GEVRAL Protein

Melt butter, add onions, sauté 5 min. Blend in flour, salt, paprika. Stir in milk and soup base slowly; heat to boiling. Add purée and reheat to boiling. Make GEVRAL Protein paste with a little soup; add to soup and mix.

Fruit Whip

(4 servings)

⅔ cup fruit pulp • 2 egg whites • ¼ tsp. salt
3 tbs. sugar • 1 tbs. lemon juice • 2 tbs. GEVRAL Protein

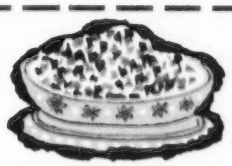
Pulp cooked fruit, or use baby-junior fruits (prunes, peaches, apples). Mix slowly, thoroughly with GEVRAL Protein. Beat egg whites stiff with salt; add sugar gradually, beat glossy. Fold in fruit, and lemon juice. (For 1 serving, mix all then add 1 portion gradually to GEVRAL Protein.

Fruit Sherbet

(4 servings)

1 cup junior pear & pineapple, canned
½ cup orange juice • ½ cup fine sugar
1 cup evaporated milk, undiluted
Few grains salt • 2 tbs. GEVRAL Protein

Combine fruit with GEVRAL Protein. Add juice, sugar, milk. Stir until sugar dissolves. Place in tray in freezer with control at coldest. Stir once after ½ hour. Freeze firm.



Cereals

2 tbs. GEVRAL Protein
¾ cup Cream of Wheat or 1 cup Oatmeal

Add GEVRAL Protein to cooked cereal. Or add to whole or skimmed milk over dry cereals.

Pine-Nog

(1 cup serving)

1 cup pineapple juice, canned or frozen (diluted)
1 egg • 2 tbs. GEVRAL Protein

Combine juice and egg. Gradually mix with GEVRAL Protein and stir or blend until dissolved.

Baked Custard

(4 servings)

¼ cup sugar • ¼ tsp. salt • 3 eggs • 2 cups milk
1 tsp. vanilla • 2 tbs. GEVRAL Protein

Combine sugar, salt, GEVRAL Protein: stir in beaten eggs. Add milk slowly and mix well. Add vanilla. Pour in cups and set in pan of hot water. Bake at 325° F. for 30-40 minutes or until custard sets.

Milk and fruit juices

(single ½ cup serving)

Make paste with 2 tablespoonfuls GEVRAL Protein and small amount selected liquid (whole or skim milk, tomato juice, orange juice, chocolate milk). Add remaining liquid and mix thoroughly.

Excellent for High-Protein Tube Feeding

GEVRAL® Protein

Vitamin-Mineral-Protein Supplement Lederle

60% protein plus 26 vitamins and minerals for complete, convenient feeding

FORMULA & ANALYSIS

	High Volume Formulas (Normal Sodium Content)		
	Formula #1	**Formula #2**	**Formula #3**
BASIC INGREDIENTS:			
GEVRAL PROTEIN	60 Gm. (2 oz.)	60 Gm. (2 oz.)	60 Gm. (2 oz.)
WHOLE MILK	1 Qt.	1½ Pt.	1 Pt.
NON-FAT MILK POWDER	3 cups (405 Gm.)	2 cups	1 cup
WATER (To Volume)	2000 cc.	1330 cc.	665 cc.
TOTAL VOLUME	**2000 cc.**	**1330 cc.**	**665 cc.**
PROTEIN	214 Gm.	158 Gm.	101 Gm.
CALORIES	2340	1686	1031
SODIUM	2.67 Gm.	1.84 Gm.	1.00 Gm.
CARBOHYDRATE	272 Gm.	190 Gm.	108 Gm.
FAT	43 Gm.	32 Gm.	22 Gm.
VITAMINS:			
Vitamin A	6720 Unit	6278 Unit	5834 Unit
Vitamin D	543 Unit	532 Unit	521 Unit
Thiamine (B_1)	6.8 mg.	6.2 mg.	5.7 mg.
Riboflavin (B_2)	14.6 mg.	11.5 mg.	8.5 mg.
Niacin	20.4 mg.	18.7 mg.	16.9 mg.
Pyridoxine (B_6)	3.2 mg.	2.3 mg.	1.5 mg.
Calcium Pantothenate	22.4 mg.	16.8 mg.	11.3 mg.
Vitamin B_{12} with Intrinsic Factor	2/15 Unit	2/15 Unit	2/15 Unit
Vitamin B_{12} (Additional)	25 mcgm.	16 mcgm.	8 mcgm.
Choline	833 mg.	581 mg.	328 mg.
Inositol	900 mg.	616 mg.	333 mg.
Ascorbic Acid (C)	88 mg.	76 mg.	64 mg.
Rutin	25 mg.	25 mg.	25 mg.
Vitamin E	10 I.U.	10 I.U.	10 I.U.
Lysine	16.4 Gm.	12.3 Gm.	8.1 Gm.
MINERALS:			
Calcium	7.26 Gm.	5.22 Gm.	3.17 Gm.
Phosphorus	5.20 Gm.	3.58 Gm.	1.97 Gm.
Iron	13.4 mg.	12.3 mg.	11.3 mg.
Fluorine	0.6 mg.	0.4 mg.	0.3 mg.
Copper	1.5 mg.	1.3 mg.	1.1 mg.
Iodine	0.2 mg.	0.2 mg.	0.2 mg.
Potassium	5.9 Gm.	4.1 Gm.	2.2 Gm.
Manganese	1 mg.	1 mg.	1 mg.
Zinc	31.5 mg.	22.1 mg.	12.9 mg.
Magnesium	600 mg.	390 mg.	210 mg.
Boron	0.1 mg.	0.1 mg.	0.1 mg.

Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

BAKED ALASKA—WITHOUT BAKING!

Jell-O products make it possible

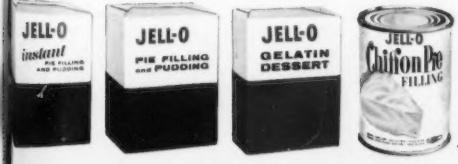
Now all these de luxe dishes are easy to make, low in cost!

Strawberry Chiffon Alaska ..... *Cost per serving: 10¢*
Strawberry Sauce ..... *Cost per serving: 3¢*
Sunset Salad ..... *Cost per serving: 3¢*
Pineapple Glazed Cheesecake ..... *Cost per serving: 7½¢*
Banana Glazed Cream Pie ..... *Cost per serving: 4½¢*

Imagine Baked Alaska—without baking! That's just an example of how easy it is to make these Jell-O specialties. Once, dishes like these were too complicated, too expensive. Now, thanks to the convenience of Jell-O products, you can make them in minutes!

Jell-O products are famous for quality and economy, too. Try Jell-O Instant Pie Filling and Pudding—no cooking required; Jell-O Filling and Pudding—makes creamy, perfect pie fillings and puddings; Jell-O Chiffon Pie Filling—whips easily, stays whipped.

And be sure to use Jell-O brand gelatin, not a substitute. Because it has high "bloom strength," it sets quickly, holds up better. Tastes better, too, because the flavor is locked in the gelatin . . . actually sealed within the gelatin granules . . . ready to pour Jell-O fragrance and flavor into every salad and dessert you make.



GF INSTITUTIONAL PRODUCTS DIVISION

For free recipes, write to:
General Foods Kitchens, Dept. J,
General Foods Corporation,
White Plains, New York.

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JELL-O DESSERTS

INSTANT SANKA COFFEE

LOG CABIN'S WIGWAM SYRUP

good seasons
SOUP BASES AND SEASONINGS

NEW

minute
sliced potatoes

POTATO SALAD
STEWS
SOUPS
HASH BROWNED
LYONNAISE
SCALLOPED
AU GRATIN
MEAT PIES

NO SORTING
NO EYEING
NO WASHING
NO PEELING
NO SLICING
NO CHOPPING
NO SPOILAGE

GENERAL FOODS KITCHENS

Hash Browned Potatoes

Bring the savory, home-cooked goodness of old-fashioned hash browned potatoes to your menus —with less time, less work than you'd think.

They're so easy to make (with Minute Sliced Potatoes!) yet cost so little per serving! For more potato recipes FREE, write to: General Foods Kitchens, Dept. P, General Foods Corporation, White Plains, New York.

Real potato slices! Ready in minutes! Use them 10 different ways!

It's the most versatile, timesaving potato product ever! Not small diced pieces —but real potato slices you can use in one potato dish after another: 1. hash browned (see above) 2. potato salads 3. lyonnaise 4. au gratin 5. parsley 6. hashes 7. stews 8. soups 9. meat pies 10. scalloped.

Just simmer Minute Sliced Potatoes for 15 minutes and they're ready for almost any potato use—and they won't darken as raw potatoes often do. This 2¼-lb. package makes 6 quarts, so for accurate batch control, perfect whiteness and consistently firm texture, try Minute Sliced Potatoes this week! Order from your wholesale distributor and ask him about . . .

Minute Mashed Potatoes, too!

White, light, delicious mashed potatoes *anyone* can make in minutes. They stay just right even after long periods of time on the steam table. And you can make them for less than 2¢ a serving.

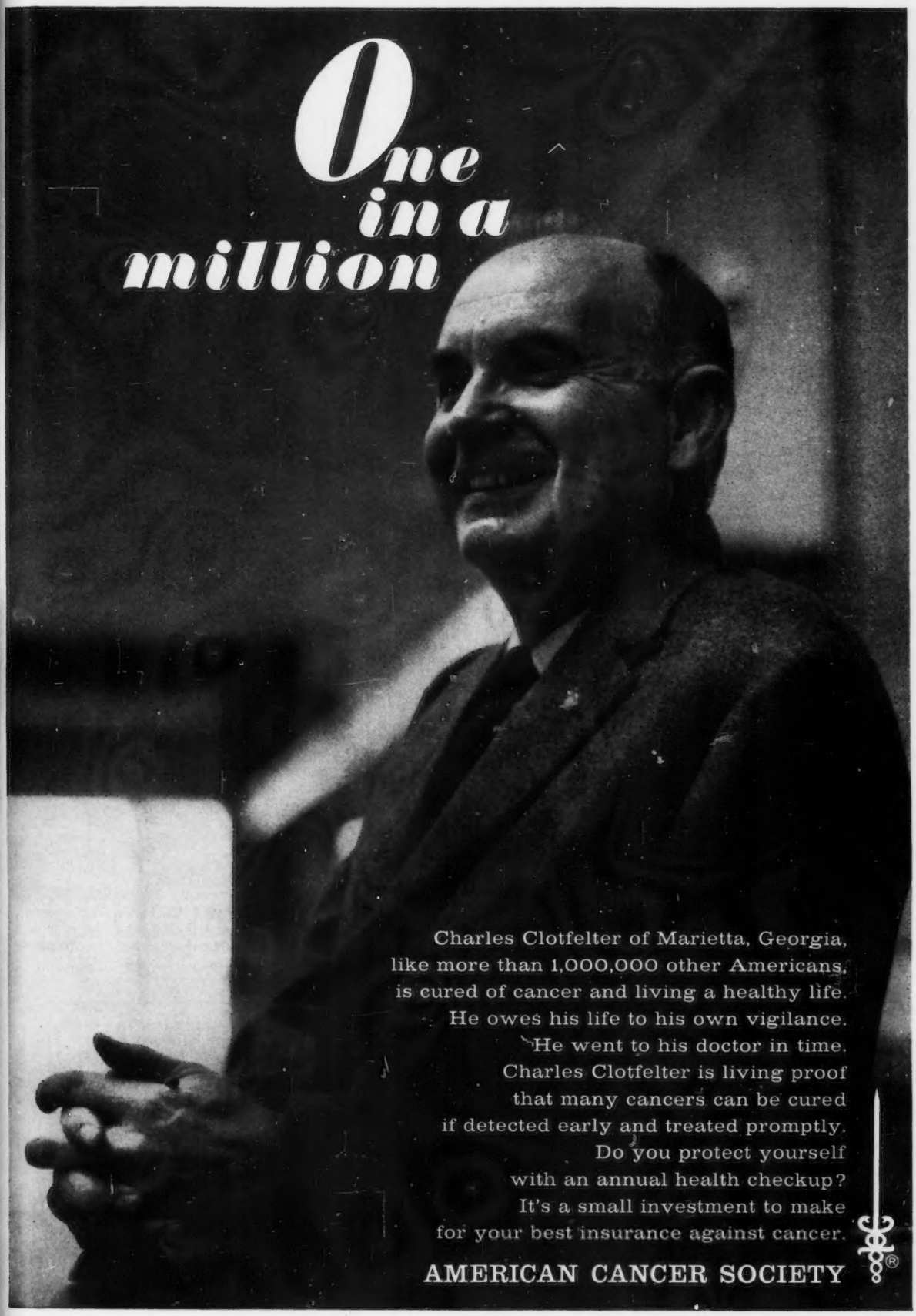
Minute is a registered trade-mark of General Foods Corporation.

JELL-O DESSERTS

INSTANT SANKA COFFEE

LOG CABIN'S WIGWAM SYRUP

good seasons SOUP BASES AND SEASONINGS


One in a million
Charles Clotfelter of Marietta, Georgia,
like more than 1,000,000 other Americans,
is cured of cancer and living a healthy life.
He owes his life to his own vigilance.
He went to his doctor in time.
Charles Clotfelter is living proof
that many cancers can be cured
if detected early and treated promptly.
Do you protect yourself
with an annual health checkup?
It's a small investment to make
for your best insurance against cancer.
AMERICAN CANCER SOCIETY

How to Turn a $5.00 Raise into a $1,000 Bonus

Wishing won't turn a $5 a week raise into a $1,000 bonus, but it's easy to do. If you take that $5 raise and put it into U. S. Savings Bonds you can buy a $25.00 Bond a month (cost $18.75) and have money left over. If you keep buying one of these Bonds a month for 40 months you'll have your big bonus—Bonds worth $1,000 at maturity.

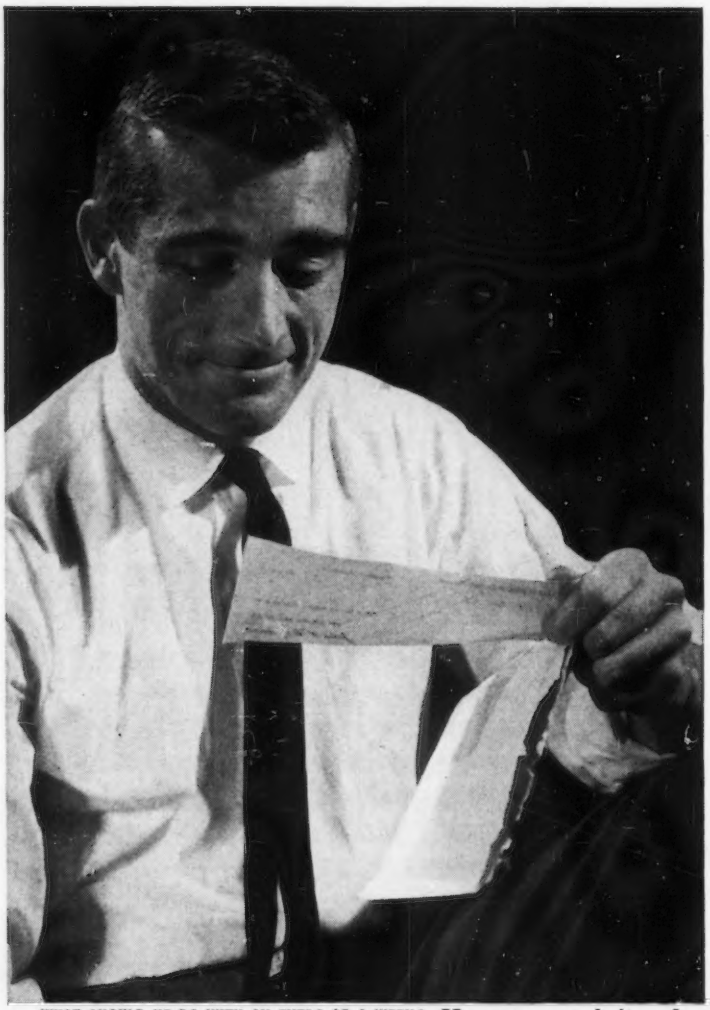
It's a pretty smart idea to save a raise. It's money you didn't have before and shouldn't miss. But, whether you've just gotten a raise, or not, why don't you ask your employer to include you in the Payroll Savings Plan?

Why U.S. Savings Bonds are such a good way to save.

• You can save automatically with the Payroll Savings Plan • You now earn 3¾% interest to maturity • You invest without risk under U. S. Government guarantee • Your money can't be lost or stolen • You can get your money, with interest, anytime you want it • You save more than money; you help your Government pay for peace • You can buy Bonds where you work or bank.

EVEN IF YOUR BONDS ARE DESTROYED, YOUR MONEY IS SAFE.

Your Bonds are recorded in your name at the Treasury. If anything happens to them the Government replaces them free.



WHAT SHOULD HE DO WITH AN EXTRA $5 A WEEK? He can spend it, of course. But, if he buys a $25.00 U. S. Savings Bond each month for 40 months with his $5 a week raise, he is going to have Bonds worth $1,000.

YOU SAVE MORE THAN MONEY. You help save the things worth living for. Every Bond dollar helps keep America strong to preserve the peace.

Every Savings Bond you own—old or new—earns ½% more than ever before when held to maturity.

You Save More Than Money With U.S. Savings Bonds

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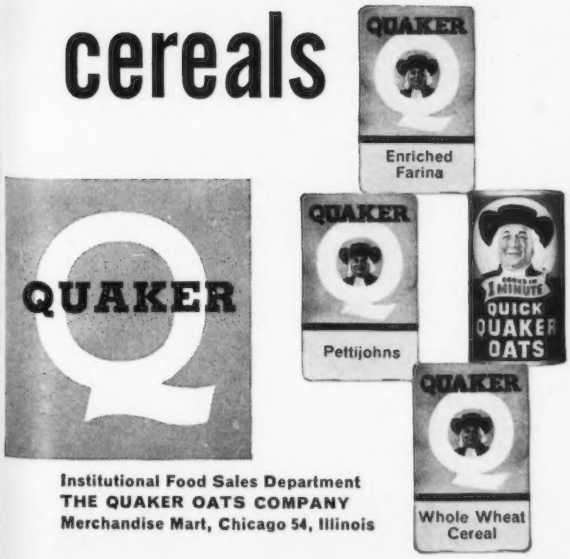
? *low sodium diet dilemma*

specify QUAKER quick cooking cereals



Quaker quick cooking cereals are *mechanically* made. Nothing is added to induce quick cooking, nothing that would increase sodium content is introduced at all. And they have all of the wonderful nourishment of the slower cooking cereals.

And, being quick cooking, they're easy for hospital kitchens . . . or for patients . . . to make. Never any excuse to skip a hot, nourishing cereal because "it's just too much trouble." Patients find them easy to buy, too. They're available at all grocery stores.

Vary your low sodium diets by specifying any—or all—of the three Quaker Quick Cooking Cereals: Oats, Pettijohns and Farina. Each is full of nourishment, each is low in sodium.

For detailed information on Quaker low sodium cereals, quick-cooking, hot or ready-to-eat, see your institutional food distributor. Or, write direct to the address below.

Don't forget, Quaker and Mother's Oats are the same.

QUAKER QUICK COOKING CEREAL SODIUM CONTENT		
(typical analysis)	Cooks in:	Mg/100 gms.
Quick Quaker Oats	1 min.	3
Quaker Farina	2½ mins.	2
Pettijohns	5 mins.	2
Whole Wheat Cereal	10 mins.	6

Institutional Food Sales Department
THE QUAKER OATS COMPANY
Merchandise Mart, Chicago 54, Illinois

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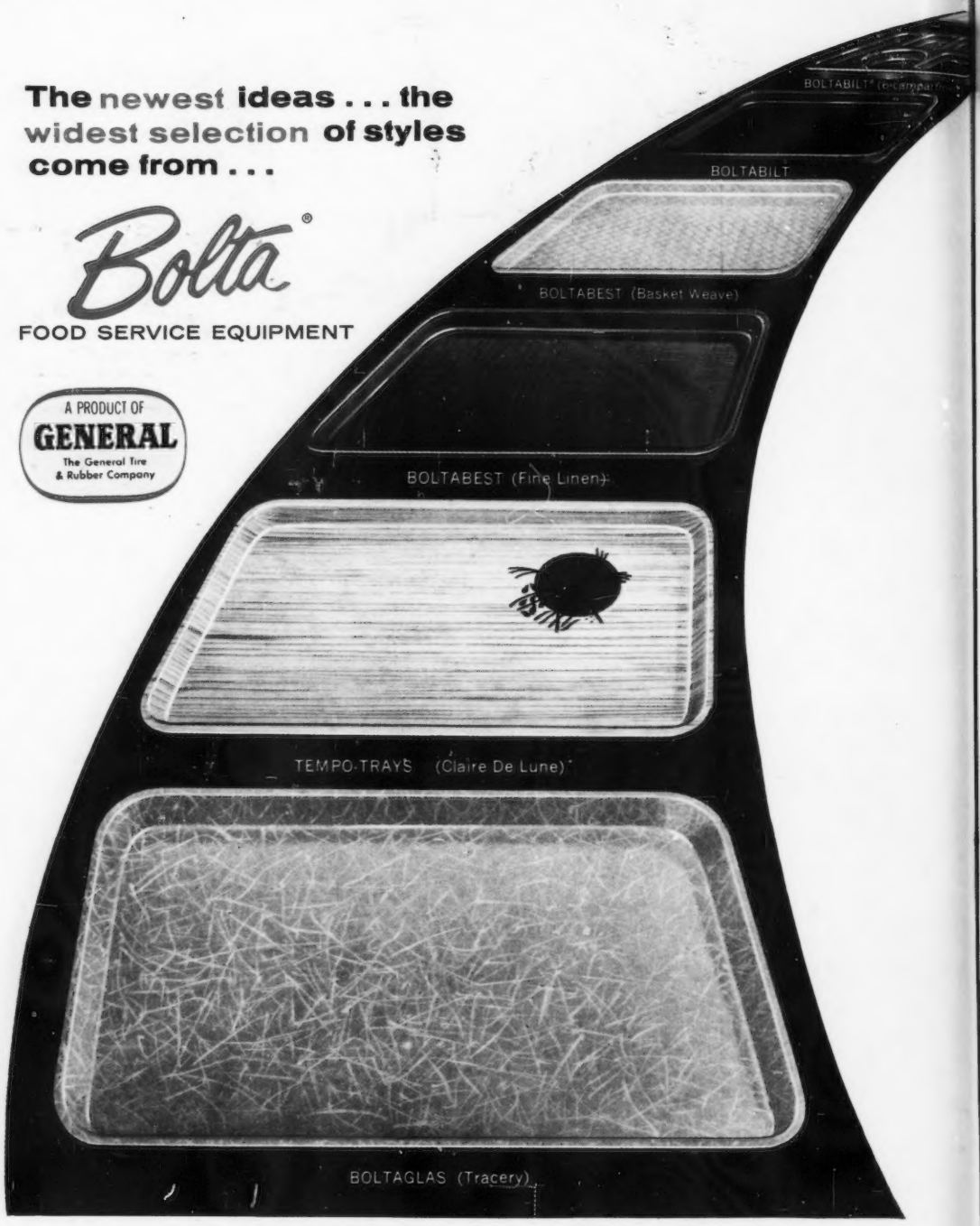

THE GENERAL TIRE & RUBBER COMPANY
BOLTA PRODUCTS DIVISION • LAWRENCE, MASS.

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